

Grow Tips from
SoftSecrets 2003-2006



VISIT...

LANZAROTE
Caliente.COM



weckels
world of
wonders

Weckels is a photographer and grow scene reporter for a number of Dutch magazines. He has achieved a certain fame in the Netherlands for his coverage of (indoor and outdoor) weed production, specialising in the documentation of outdoor plantations. Here, Weckels will discuss the growing of marihuana indoors. Take advantage of it!

Text & photography: Weckels, the grow-specialist from Atami

A rolling production system

In this edition I'm going to be describing a grow system with which we can produce a continuous stream of plants - leaves, branches and buds! That this system is often well-suited to people who like to keep a nice garden growing on the side of their regular job or other activities will become clear. At least we don't have to hide ourselves away like some sort of hermit when the harvest comes upon us...



A rolling production system as shown here in the photo is the basis of every independent grower, who does not want to be dependent on any third parties for his or her clones.

It's a particular problem for the lone grower attempting to raise and look after a whole plantation in a commercial fashion that time, in every way, eventually runs out. Frequently the plants are just at the right moment for harvest, when your normal work week begins once more.

Which means a whole world of stress and anxiety for the grower, since he can hardly call in sick without taking a risk. Many a grower has fallen victim to some sickness ruse or other, only to have someone call round - a colleague or health worker - come to check on them. For the busy grower upstairs trimming, there's no escape, since to go downstairs and open the front door would release a gulf of dope stench from his clothes. But not answering runs the risk of getting into a heap of trouble at work. In short, an unwelcome drama.

Ease

That a rolling production system can take away a huge pile of stress is down to the

fact that it requires that you clone and harvest only in small numbers, and that makes the raising of marihuana for many a great deal more comfortable. Trimming for days (sometimes even weeks) on end can create in even the most fanatical grower a degree of irritation. And let's not get started on the problems of a whole room full of trimmers in a small, warm space trying to keep cool while at the same time getting through a load of trimming in a reasonably short space of time.

The greatest arguments break out in such situations over the tiniest of things, and these high pressure situation can also be avoided by using a rolling production system.

Various stages of growth

The rolling production system is in principle very simple. It works more or less exactly like any other system of growing. Only that in this case we now plant the marihuana plants in a variety of different stages of growth. In this way, we always have plants we

That a rolling production system can take away a huge pile of stress is down to the fact that it requires that you clone and harvest only in small numbers, and that makes the raising of marihuana for many a great deal more comfortable.

can harvest, a selection of mother plants from which we can continuously take clones from, and of course the clones that have just developed their little roots. Of course we have to keep an eye on the various growing stages, and if necessary help them along.

When the plants have reached the desired height and shape, we take them to a different room. The plants from now on need a shorter light period than the standard 18 hours, thus we have to divide our growing space in two.

This is not as easy as many people sometimes think. We have to also split the air inflow, the air outflow and such like in two, given that both rooms have to be split entirely in two. In doing so, we have to also make sure that absolutely no light in any way can leak from one space into the other, since

we would no longer be able to guarantee the light levels and the plants risk not wanting or being able to bloom, and can even become stressed.

Of course, we could always choose to just take the well developed plants to another location. Much safer is to go ahead and let the plants bloom in the same space or perhaps in the room next door to the growing room.

In this way we prevent having to go struggling around in public with fully-grown plants. In the first place, this brings with it great risk, not just to the plants but to the entire rolling production system, when the goal is to set up a system that is a self-contained as possible.

We can better try and put a fully independent nursery into production, and not have to rely on any third parties at all.

Clones

Such plantations are generally found outside of Holland and in places where it's difficult to get hold of clones.

Here in Holland it is impossible to be self-sufficient and raise healthy clones without outside input (as in any other indoor growing).

Furthermore, growers can sometimes

evade large punishments if caught, since they are rarely in possession of seriously large amounts of marihuana (they can only harvest limited amounts). In this case a plantation in which the plants are in various stages of growth has the great advantage that this system will deliver much earlier some smokable weed for their own use or hobby, since much less has to be raised at the same time.

Experimentation

It is quite unusual for it to be hard to get hold of clones in our small country (with exceptions), but especially for the grower who likes to experiment a little, the rolling production system has a lot of possibilities to offer. I myself know a number of growers who, besides their regular garden, also keep a grow cupboard going "for pottering" in. Maybe this sounds a bit negative, but the

new breeds that are (and might be) coming out of such growing cupboards, more than makes up for it.

Flower pots

Given that we are going to have to move the pants around a bit if we're going to get them into flower, it goes without saying that we have to grow them on a substrate that allows the plants to be mobilised easily. Huge growing tables or extensive feeding systems are simply too unwieldy for this system. Far better in contrast to raise the plants in flower pots, or special boxes, for example. The great advantage of flower pots is that we can immediately remove the poor growing plants and replace them with new clones in their space (and we always have

advantages when compared with growing in flower pots, since we can move a larger number of plants together when they're in boxes than when we have to struggle to the other room with single plant pots. Also we can use the boxes purely on their own to grow in water, and this is a bit harder with plant pots. In addition there are special grow boxes that are more than strong enough to house the huge mother plants. Definitely when we want to wean the plants and encourage them to develop large side branches, by allowing a ventilator to blow regularly on the plants, a fully toughened base for growing is soon more important than an unnecessarily luxurious one. When we grow and raise the mother plant in too

Because with this rolling production method of growing, when all is said and done, we can select the best mother plants very precisely and use them to continue

raising plants in this way from the most expensive top breeds, and get lovely harvests time after time. Be successful!

Especially for the grower who likes to experiment a little, the rolling production system has a lot of possibilities to offer.

enough clones to hand with the rolling production system). Also we can move the plants away from each other if it looks as if they are beginning to compete with each other. Doing this when growing in boxes can be a bit more of a hassle, because in the first place it can be harder to spot the poor growers. In addition, removing the poor growing specimen is more problematic, since we can easily damage the roots of neighbouring plants without even realising it.

Boxes

But boxes too have their place and own

small a plant pot, they are bound to fall over as soon as the ventilator starts doing its job. A sad glimpse at a severely damaged mother plant is the result. One box system then does earn a place in this way of raising plants by preference.

Top breeds

Despite the fact that this form of growing in Holland is rare, thanks to the wide availability of clones (nearly) everywhere, it still suits a limited number of growers. The grower who is completely independent and alone, for whatever reason, should certainly consider it.



COLUMN

Still Smokin'

Joe Kane lives in Glasgow. Having been removed from higher education some years ago he's managed to nothing much at all ever since. To the untrained eye it looks like he sits around on his arse all day, but he is actually an adept of the ancient discipline of Stoner Zen, and is working towards The Satori of the White Widow.

By Joe Kane

Well, readers, for the past three months now I've been trying to quit the filthy weed. And I've got to tell you that it's been a fucking struggle. This is one bad, addictive bastard of a drug.

Yeah, I'm talking about tobacco. Nicotine. Fags, tabs, baccy, shag. Or to give it its Sunday name: *Nicotiana tabacum*.

I'll tell you something. The Ottoman Empire had it fucking right. Getting rumbled sparking up a ciggie back then and you'd find your neck on the business end of an axe. Or hanged and quartered. But all the same, even the threat of a horrible death didn't stop folk taking up the habit.

Anyway, I'm trying to kick the ciggies

again. This has been an ongoing fucking battle for the past ten years. After the usual tantrums and bad temper I stop. I once managed it for nearly two years, but usually I only last for a few months and then it's back on that path to the cancer unit.

Fucking hell, the shit politicians spout about drugs eh? In my life I've done as many legal and illegal (mainly illegal cos there's more of them and I think they're more of a buzz) substances as I could lay my mitts on. \And I've had a few ups and downs with some of them. These days I don't do Class A drugs, and I can put my hand on my heart and tell you stopping them was no bother at all. But see trying to stop fucking smoking

tobacco? Getting off them isn't too hard. I wouldn't say it's a piece of piss exactly, but it can be done. It's the staying off that's a bitch.

I've given this whole thing a lot of thought I reckon there are two big obstacles between me and a nicotine free body.

To start with, there's alcohol. There's something that's just wrong about going to the pub for a skinful and not smoking tobacco. It's abnormal, man. Beer and fags were made to go together; or at least if you're a smoker they are. So I can't try to quit smoking

and still go to the pub. So stop going to the pub, as my girlfriend (a non-smoker) says, and that's fair enough I suppose. I probably drink too much anyway and if I drink too much it means I'll be smoking too much as well. A bit of a fucking wrench, but not the end of the world.

But the REAL problem for me is the weed. Beer I can just about do without, but weed? No fucking way, man. And I know what you're all thinking: why don't you eat it, Joe? Why don't you smoke it in a pipe, Joe? Why not use a vaporizer?

Well, eating it's too unpredictable. Either you don't eat enough and you're left high, dry and straight (bad

situation), or you eat too much and end up whitey (worse situation).

Pipes I can't be bothered with cos they're not sociable. A joint is a good thing because it can be passed around. A pipe just isn't the same.

Proper vaporizers are too expensive, there's too much farting around with temperatures, and it's like smoking fresh air. I know that's the point but I don't like it, man. I like to see a big cloud of smoke leaving my mouth. That way I know I've had a good toke.

I tried some of those horrible fucking 'herbal smoking mixtures' too, and I got to tell you, I think I'd rather take my chances against the Grim Reaper than put any of that shite into my lungs. It just doesn't cut the mustard, people. Know what I'm saying? It lacks that small but all-important nicotine hit.

I just looked at what I said already and maybe I was wrong about the two things. Maybe there's a REALLY important third obstacle and that's that maybe I don't really want to stop smoking the fags and all this is just bullshit? I think I need to go and smoke a spliff and re-assess the situation. Where did I put my fags and skins?

Later, Joe.



weckels
world of
wonders

Weckels is a photographer and grow scene reporter for a number of Dutch magazines. He has achieved a certain fame in the Netherlands for his coverage of (indoor and outdoor) weed production, specialising in the documentation of outdoor plantations. Here, Weckels will discuss the growing of marihuana indoors. Take advantage of it!

Text & photography: Weckels, the grow-specialist from Atami

Growing in the closet

This time around, there'll be no mention of monster patches or warehouses full of plants, but just a single allotted cupboard in which, with difficulty (thanks to the restricted space), maybe ten plants can be raised to maturity. That this form of growing really is no longer the sole preserve of the beginner is not especially well known among growers. Most of us opt by preference for one huge space in which all plants can be raised together simultaneously, and which later can be set to bloom at the same time. In this way at least we are assured of a large crop and the expensive equipment can be more quickly paid for. Nonetheless, bear in mind that making a good profit will also drive up your non-equipment costs (e.g. energy, food) too.

In any case, most growers choose, purely for reasons of limited space, to grow in a cupboard. Not everyone is lucky enough to be in possession of a garage, empty attic or other suitable space for a decent plantation, and many of us literally have access only to a cupboard for their cultivation.

Small cupboards have even been known to be overlooked during a raid. They also reduce the risk of us being caught growing because we can empty the cupboard in an evening and/or move them if there are raids going down locally.

With a little handiwork, any cupboard can be transformed into a good place for growing. But you should always make sure there are no cracks out of which the strong odour (from the plants) and powerful light from the lamps can escape from. Besides the fact that the strong light can give us away as growers, the plant itself can be hurt by the experience if she's in bloom. If light happens to get in from outside (the cupboard) during the dark period, then the plants soon become stressed or can even cease to bloom altogether.

Even once we have made sure all cracks have been filled, we're still far from finished with our preparation. For a start there's a lamp to be hung over where the plants will grow, the air filter still has to be installed, and in the bottom of the cupboard some sort of run-off tray has to be fitted, in which water overflow can be caught.

It's not really necessary to have an automatic watering system fitted for growing in a cupboard, provided we're prepared to be a bit handy with a watering can and can ensure that the plants get enough (feed) water.



The buds stand nicely at the same height, which will be to the benefit of the eventual harvest.

Because putting together a professional growing cupboard takes a fair bit of time and not everyone is capable of cobbling

huge to count, then at the very least we are going to have to descend on it at harvest time with a bunch of friends.

At worst a whole team of trimmers will

one together themselves, a lot of (cupboard) growers choose to buy one (or indeed several). The great advantage of buying a growing cupboard is that for a start it saves us a pile of work, and secondly that it probably, eventually, works out cheaper in total cost than buying a whole bunch of separate parts (such as lamps, an air filter, a thermometer, and so forth). It will also inevitably happen that the first time you try it out you'll accidentally trash a whole cupboard because despite all your hammering, nailing, filling and so on, it's still too rickety.

Nonetheless, a bought or self-made growing cupboard offers a great deal of opportunity - especially when more than one are used - for the beginner and the experienced grower. Even for the real 'big boys' among us there are some real successes to be had.

One of the biggest advantages of using what are often pretty small cupboards for growing in is that the large amount of trimming work can be spread over longer periods. When we don't use a small cupboard or space but fill a large warehouse full of plants in numbers too

be needed to get the work done. For this reason it can be a useful strategy to germinate a large room full of plants and then once they have developed a bit - you can even let them begin to

bloom slightly, spread them out. But when the harvest period comes, it really comes.

With it often comes panic for the grower too, when he begins to calculate the number of cutting and trimming hours ahead and realises he ain't gonna make it.

When this situation arises for a grower with a space in a nice secluded, out-of-the way place, it's often no problem to move a horde of nimble-fingered ladies armed with scissors in and start them snipping away. This is the only way of handling a large harvest and being certain that all the buds will have had the sheers run over them in time.

If we happen to have set up our growing space in a busy neighbourhood, it has already been hard enough to sneak the

growing equipment past preying eyes, let alone a whole team of trimmers. For precisely these growers, the cupboard growing technique has a lot to offer, because you never need more than a day trimming when there's only ten plants ready for harvesting.

Further more, we're no longer dependent on third parties, by which primarily I mean the deliverers of clones. When we use more than one cupboard we can set up a sort of rolling production line. By this I mean that we can establish the plants in various growing cupboards in different stages of development and flowering, and we can always be in the position to take clones off the plants that are in their growth stage at that moment.

In such a way do we not only control the costs, we can also germinate the more expensive varieties from seeds, select the loveliest and strongest plants and fill the cupboards with these. All this even makes it possible to tackle raising the really exclusive breeds, those not available at your common or garden clone merchant. In short, before we know it we've got a cupboard full of a really special bud, one any coffee shop or 'independent retail agent' will snap your hand off for.

It is also the case that smokers are becoming increasingly discerning, with greater demands on the qualities such as taste, appearance and high beginning to become ever more important. We will soon start to see far fewer of the simple varieties entered for the 'weed cups' and other important public statements of the best (-raised) marihuana.

Besides the advantages of spreading the scissor-work and providing a rolling system of breeding and then using our own clones, various growing cupboards also offer the possibility of getting a very

The ten plants in this growing cupboard are already in bloom, and they've surely reached the right height.



INDOOR



A nice yield for such a small space. The buds do have a few yellow leaves, but for the rest were of excellent quality.

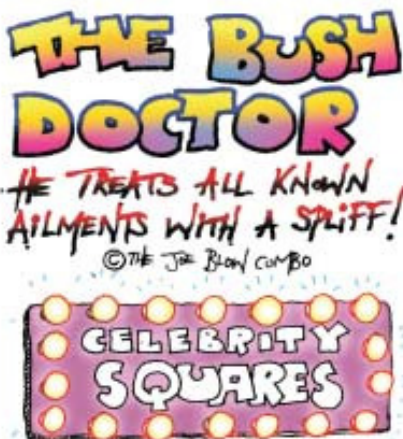
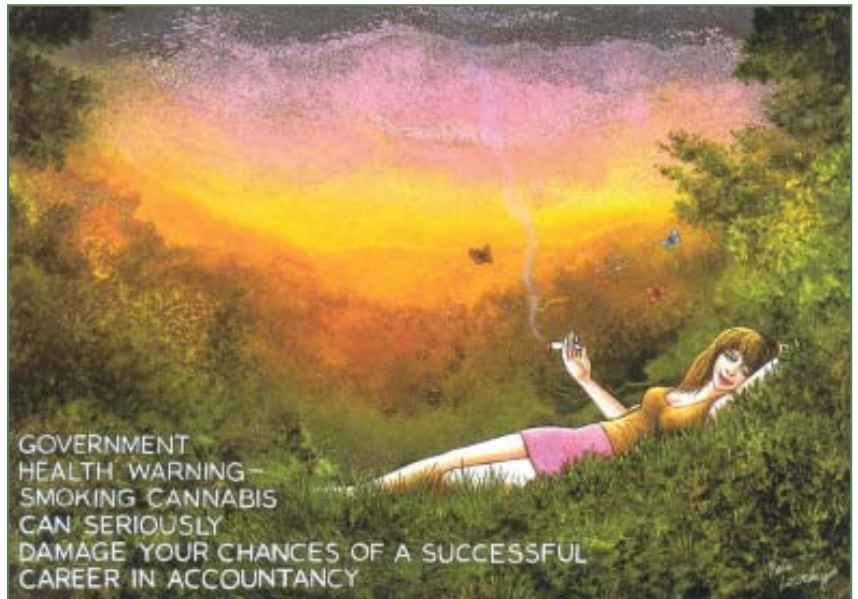
good result without using excessive amounts of energy from the mains. But it will undoubtedly still have happened to some of us: you've got a nice cubby hole full of lamps, and then suddenly everything goes out. Naturally you had a torch in the vicinity and the search for the cause could happily begin. After a whole heap of trouble you manage to get it up and running, and once again, begin to relax and trust the system. Sadly, the next day it goes off again. Now we're starting to get pissed off with our housemates, who in turn are pretty

pissed off with us, and it's off back to the growing cupboard. After some more detective work, we finally put the problem to rest: the mains supply was inadequate for the needs of the system and once again the fuses kept blowing. Only doubling the outlet sockets leading to the growing space can solve it. But this is not as easy as it looks, and not everyone is happy to deal with a spaghetti of electric cables snaking their way into the cupboard. For those in such a position, growing in more cupboards can be the ideal solution, then we can split the energy supply up during the day and night and thus spread the load on the house's wiring. On top of this, small cupboards often have the advantage of producing considerably less odour pollution and have even been known to be overlooked during a raid! They also reduce the risk of us being caught growing because we can empty the cupboard in an evening and/or move them if there are raids going down locally. Further more, most local bobbies have much better things to waste their time on than busting

some nickel-and-dime cupboard with a few innocent plants in it, and if caught we're most likely to get off with a caution. As for the actual growing itself, a cupboard does sometimes have the drawback that it can be very temperature-sensitive. For example, when the vacuum pump is not working at the right speed, the temperature can quickly become raised and we have to make sure that they do not become wilted and/or even withered. This is in contrast to the situation in a large grow space, which changes temperature

less drastically.

Rather than too high a temperature, the problem in the winter months can be that the temperature in the growing cupboard drops too far in the (dark) flowering period. This can be very damaging to the developing flower clusters and for this reason it is advisable to have the cupboard inside a room kept around the 20-degree mark. Only in this way can you maintain the optimal living environment needed to fully realise the huge potential of cupboard growing!



Irrigation without frustration

The month of May is upon us and for pretty much every outdoor grower the crop is now in full swing. This whole month will see a good deal of progress thanks to the number of hours sunlight and the accompanying temperature. Meanwhile indoors, we will be ensuring that the climate remains within welcome limits...

Since the watering of marijuana plants in the right way and amounts creates for most beginner growers a huge number of questions, I will be paying attention to this important topic in this issue. That the issue of watering can create problems even for experienced growers is also a fact. Especially when we vary our tried and trusted way of growing with a new variety and/or a different growing substrate, our self-assurance has a tendency to slide away into doubt, which can lead us in turn to create less than ideal living conditions for our plants. In short, the watering of marijuana plant often looks easier than it really is.

Professional watering

Because going around giving water by hand (watering) to indoor plants one by one is best avoided (and furthermore, nigh on impossible anyway once the plants are shooting up in size), in this article we will only be discussing the watering of plants with the aid of professional irrigation systems.

One of the most used irrigation systems is the one which uses special drippers to provide the plants with their feed water. This system works fine, so long as we rinse the whole thing through regularly with enzymes in order to prevent a build up of salt residues. These drip feeders ensure a meticulous portioning out of the feed water to the plants, and virtually never wash away the soil from around the roots.

Climate conditions

Before we launch into our primer on plant irrigation, it is important to spare a few moments to contemplate what factors influence the total number of times a day we give plants water, and the total quantity of water they will require per day. Among other factors, the thickness and aeration of the substrate are of great importance. The stage of life the plants are in also plays a large role, and with it the whole living conditions we have created in

Among other factors, the thickness and aeration of the substrate are of great importance

our growing space. By 'living conditions' I mean the temperature in the grow room and in the substrate, the moisture content of the air, and the quantity of light we provide via the



The blue drippers are clearly visible, and these provide the plants with the correct quantity of feed water, provided that the grower makes sure that the irrigation system is correctly programmed.

grow lamps. All in all then, there's a considerable number of factors that, even though they are not closely connected with each other, will eventually co-determine our method of irrigation.

If, for example, when growing in soil we look at the thickness of the substrate, then it might happen that a thin layer of soil holds more feed water in it than an earth mix that may well be twice as thick, but also much airier so that the thicker layer of soil can actually carry a lot more feed water without the plant being negatively affected. Another example is two growing spaces the same size in which

their leaves, take a substantial amount of water out of the atmosphere, in contrast to the plants raised in the very 'dry' room.

Differences

It will be obvious to most growers that in the above example, the differences will also result in considerable differences in the amount of feed water given the plants in their respective grow spaces. That the temperature has an influence on water usage has to do with the fact that it is this that ultimately determines the evaporation (or, strictly speaking, transpiration) through the leaves. In brief: when the temperature rises, then the rate of evaporation goes up too and as growers, this is something we need to be in control of. Anyway, I always maintain that in a case like this we are best off keeping the temperature constant rather than continuing to endlessly increase the feed water given. It has long been known that marijuana plants thrive best when kept

By: Weckels, the grow specialist from Atami

at a temperature between 24 and 28 °Celsius, and that's why this is part of the art of growing.

'Bugging' the plant

To return once more to the life stage of the plant, we can determine three distinct phases: the beginning phase (in which the plant is still a clone), the growing phase and the blooming phase. In the beginning phase it is important that we give as little water to the clone as possible, in order to force her to go looking for it and thus develop a proper root system. In effect we are 'bugging' or irritating the plant (clone) a little bit.

Because this is a rather critical stage, we create the absolute optimal living conditions and in doing so keep an eye on the young clone continually. In the first place we hang our lamps as high as possible to keep evaporation to a minimum. When giving water (in the beginning we do not go giving all kinds of nutrient directly), the quantity is partly dependent on whether we are using an air humidifier or not. I often still give the clones water when they are starting off by hand, because then I can do everything really carefully. It is important in this case that we check the clones several times a day. If this is not possible then there is no alternative but to immediately begin automatic irrigation in the beginning phase.

The growing phase is the phase in which the plant, now well rooted, must be seen to expand in size and development. Here it is of great importance that the plant has access to (more than) sufficient feed water so that it can develop optimally. We programme the irrigation system in such a way that only a tiny dribble of surplus feed water flows from the substrate. In this way the plant gets (more than) enough feed water and we prevent soil being washed away and wasting feed water. The number of times we irrigate the plants is dependent on the depth and aeration of the substrate (in our case a layer of soil). When for example we grow on a thin layer of well-aerated soil, it is very important that during a day we give the plants feed water in little-but-often amounts. In this way we keep the roots sufficiently moist (so that they don't die), the plants get the right amount of feed water and the roots of the plant can easily take up as much oxygen as they need, since the thin layer of soil dries out again quickly. This is where growing on just a thin layer of light, airy soil has a great advantage: we can hardly give the plants too much feed water, since the excess runs off so quickly. Problems of a waterlogged undersoil tend to happen now, in the critical phase in which clones are still developing their roots, or because we are growing on a



You should always make sure that one dripper's worth of feed water is dribbled into a measuring beaker so as to know exactly how much feed water our plants are getting in reality.

substantially thick layer of substrate or a layer that is totally un-aerated and thereby has difficulty letting the excess water stream away

growers we must avoid at all costs balling up our crop a couple of weeks before harvest thanks to us having given the plants too little or even too much feed water.

We create the absolute optimal living conditions and in doing so keep an eye on the young clone continually

Just to give you some idea of the number of times to irrigate each day, during the growing phase (when growing on a thin, airy layer of soil) I irrigate about 19 times a day, each time for between 5 and 14 seconds. For the grower it is often just a case of giving it a whirl (carefully!) and discovering what gives you the best results.

During the blooming phase the plants need to have access to as much feed water as they want, given that they are using this to enable the flower heads to develop and it is therefore an important yield-determining factor. Moreover, as

In any case, to give us a clearer idea of precisely how much feed water we are giving our plants at any given stage of their life, it is advisable to let one of the drippers dribble its entire contents into a measuring beaker. In this way we can calculate just how much water each of our plants is getting and we can build up a good knowledge of growing the right variety under the right conditions, with the right amount of feed water. It will cost you a bit more work, but it will deliver tangibly better results – and harvest! – in the end.

Till next time!



When we want to grow on a thin layer of soil, boxes or crates are ideal to use. Then we really can irrigate the plants often and only for short periods.

COLUMN

Straight Life

Well, since the upheavals recounted for your amusement in the last column, a few things have happened. Despite having been named to the odd bill nearly three months ago, nothing has happened. I've taken some obvious precautions like knocking the commercial ventures on the head for the moment. And I've moved house, which is always a hassle, but unfortunately was totally fucking necessary. On the bright side, moving has meant that I can start from scratch again: only giving my new phone number to particular people and giving the address to absolutely nobody (paranoid, Moi?).

I've also decided to stop fucking around with all the retail shit, and take a leaf out of my own book. So no more punting 3.5 gram deals to students, pikeys and doleys. Fuck that. The funny thing is that I *knew* when I first went down that road that I was lining up a load of fucking grief for myself, and how right I was. Anyhow, from here on in I'm strictly wholesale only, and I got to tell you readers, I'm much happier now I've made the decision.

One of the biggest things is that I've had to do something I never, *ever* thought would happen to me. Readers, I can hardly bring myself to say the words. Yes, I've had to get a job. It's not that I need the money or anything, far fucking from it. What I *do* need is a legit source of income to keep the snoopers off my back.

Unfortunately, I'm not exactly brimming with either the qualifications or the enthusiasm required for most jobs these days. In fact, the only jobs I ever had were casual numbers working in the kitchens of cafes and restaurants. After a couple of knockbacks (company directorships, etc) I kinda fell back into that niche. Despite all my attempts to be legit about all this, the first two jobs I went for said they'd pay me off the books! With the third one, I got what I was looking for: £5.00 an hour and paying tax and insurance.

So here I am back in the labour force, and it's reminded me really fucking quickly why I never wanted to do it in the first place. For one thing, it really cuts into your social life. Dealing may have a few risks attached, but at least you always have time to fuck about, watch television, play tunes and just chill. Another thing is that no matter how many hours you put in, there's always some fucker calls in sick and you've got to cover their shift.

Then of course, there's the shit wages and the fact that the proprietor treats you like something they've stood on in the street.

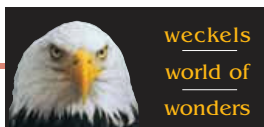
But I think the worst of it is that I have to really try not to talk about dope! Kitchen workers don't seem to have changed one fucking bit in nearly 10 years! I suppose it's the fact that it's such a fucking shit job that means *everyone* is into something. More-or-less everyone smokes dope, but unfortunately they smoke really fucking shit, gangster dope. And it's a tricky call, cos while I don't want to pollute my lungs with it, you got to be seen as friendly at the same time, otherwise a

shitty job becomes unbearable.

So now I find myself smoking horrible dope and drinking cheap booze with my new found "friends" at work. Talk about hoisted by your own petard, eh? I'm *really* going to try to last at this, but sitting on my arse watching the money roll in is just too easy to really be bothered with all this work shit. I just wish the fucking government would sort it out, legalise the fucking stuff and let me pay tax on it. Yeah, dream on...

Later, JK

horribly_stoned_boy@hotmail.com



The great advantages of cold winter weather

...and keeping your grow space well hidden!

Winter is almost upon us, the trees are bare, the locks are frozen. In short, ice-cold air is once again a regular visitor to our countries. Whilst the cold temperature and the dry outdoor air can be the cause of a lot of nastiness, for us as indoor growers the golden times are back again! Because at no other time of the year are such good results achievable as in winter!

For this great advantage of the winter months we can thank the low outdoor temperature which makes it possible to hang more lamps indoors. That is in the summer months quite the opposite, when for most attic growers it is the time to be watch out, as the outside temperature can climb to 30°C. With a lot of work and by running the ventilators flat out, it is just about possible to keep the temperature just about within the safety zone, but it will cause you a lot of extra sweat and there can be no talk of achieving an ideal climate.

Besides the favourable outside temperature in winter, indoor growers also have the advantage that the air at this time of year is very dry

Besides the favourable outside temperature in winter, indoor growers also have the advantage that the air at this time of year is very dry. In short: when we let this air be blown (carefully) into our grow space, then there's no way our air moisture inside is going to be doing anything crazy and we will be able to approach the bloom period with a justified feeling of calm. Professional growers do not really benefit from these advantages of the winter months, since they usually have an air humidifier or even a full climate control system in their grow spaces to air moisture remains at just the right level all year round. But not everybody can count on having such luxuries.

Hunting season

Alas, that the winter months also increase our chances of being busted is less well known among growers. In Holland, and it may well be the same in the UK, drugs squads also know that the number of (indoor) plantations is at its highest at this time of year, and so for them it well worth paying a bit more attention to these activities. Somewhat less charmed by the weather in the winter months and the resulting increase in indoor grow ops around this time are the big electricity companies, who don't welcome the increase in numbers of people ripping off their power from the grid. As well as the police, they also really want to see some growers busted. When they work together with the police, they can become a very strong threat going along the suspected addresses one by one and thereby grab



The grow space is nicely hidden. When we close the door and shove the wardrobe in front of it, our mini-plantation will be a heck of job to discover.

all the electricity tappers by the collar. Especially in the last months there appears to have been a veritable witch hunt unleashed. In the West of Holland in particular, there would appear to be a regular 'hunting season' opened. Dozens of plantations have been discovered and the police have confiscated a lot of equipment and marihuana. Of course it is going to look pretty bloody obvious if at a particular moment particular districts or even particular parts of an industrial estate the demand for electricity suddenly peaks.

Pay up for juice!

What is really noticeable is that the growers who get busted are usually the ones tapping electricity illegally, whereas those paying for their current, with a

bit of luck, escape the net. And indeed, why would an electricity company start making a fuss when a marihuana grower doubles his electricity consumption and pays politely on time for it? Obviously, as a grower you have to have your story straight if they come asking what you're doing with all this extra juice. For if you suddenly start using two or three times the electricity you used to use in exactly the same house, bells are going to start ringing in someone's head and up goes your chance of being busted. So decide whether you've bought a sun bed or a kiln for your new ceramic hobby or something.

Contemplating the above considerations has prompted many a grower to change the way they operate and make changes, given that they would rather spend a bit

By Weckels, the grow specialist from Atami

more on their electricity than try and avoid paying and then run the risk of losing a lot more in the end.

Leaving aside the increased chance of getting busted and / or of landing a fat fine for illegally tapping electricity, the activity itself remains a pretty precarious venture. In addition the various (deadly) accidents that can happen, there is also always an increased chance of fire. Should your house go up in smoke and your insurer finds out that your electrics have been fiddled with, then the financial blow could be severe; in any case, it's going to take a good many years of growing marihuana to get your head back above water.

Diesel generator

There are growers who rise above such problems by seeking more creative ways to solve them. So for example the real 'big boys' tend to use a diesel generator to provide their spaces with electricity. Besides all the hassle of having to lug around diesel fuel, these machines tend to make such a hell of a racket that our plantation stands a big risk of being mistaken for a building site or factory. Of course, we can always reduce this as much as possible, such as by building a sound-proof cupboard for the generator. But it remains a heck of a job to completely get rid of the racket. What's more, the purchase of a generator remains a pretty considerable investment.

Talking about investment, this brings us straight to the considerable number of growers who just hope to muck about a bit for a few years and while doing so bring themselves a nice little income with it. It is often this group who are barely if at all aware of the risks and yet are at the same running putting themselves at the most risk of being caught. This is because these, for the most part not really professional, marihuana growers all too often as a way of keeping costs down save money by not choosing good filters and avoiding somewhat dearer but often much better equipment. The coops are thankful to them for it, so make good use of your grow shop to prevent such problems!

As well as the problems mentioned above the winter months also often have the drawback that the warm air we have to expel from our grow spaces can be difficult to get rid of unobtrusively. When we're growing in a shed and the warm air is belching out in great rising clouds, then that is not a comfortable feeling for any grower. We need to minimise every risk, but the one noted above it remains a hassle to get rid of warmed up air without it being seen.

Search warrant

What always remains of utmost importance is that the grow space is well sealed, in short because whenever we receive a visitor or a burglar is wandering around your gaff, we want to make it as hard as possible for him to discover your grow space. Also for when the police turn up for a quick look

Weeding out the Bullshit

By Joe Kane

Well, readers, this was going to be a column regaling you with more Iberian antics but a couple of things happened back here in Blighty that caught my eye and kinda seemed a bit more important.

I dunno if anyone caught the stories in the press lately, but there was a bust in County Durham in the north of England where the Dibble seized 1500 plants that apparently had a value of A MILLION AND A HALF POUNDS STERLING!

Now, while yours truly is definitely no mathematician, I can do basic arithmetic, and that makes each plant worth something like a thousand fucking notes each! That's about 1,480 Euros, if I'm gonna be European about it. Are they made of gold or something? Or maybe they're like those giant Redwood trees you get in America? I know they grow big fuck off leeks in the north of England but that's just ridiculous. Jack and the Beanstalk, anyone?

Jesus H Christ on a bike! If that was me I'd sell the fucking plants and move to Spain.

Another story along the same lines from a week earlier says that 330 plants were grabbed but this time the value was £30,000 (about 44,400 Euros), which makes them worth about 90 quid (about 133 Euros) each. This was in Surrey in the Deep South, which is supposed to be the posh end of the country where every fucking thing you could think of costs, like, a zillion times more than anywhere else.

And in the north of England they still have keep pets so they can put meat on the table, send kids up chimneys and wear wooden shoes, for fucks' sake! (NOTE: I got to apologise for the crude stereotyping here readers, but it's meant to be a laugh, right? And I mean, I'm Scottish, for fucks' sake!)

No, there's definitely something wrong with this picture. Okay, I know what you're probably thinking: giving the northern plants the same value as the southern-softy plants still works out at a total of 135K, which is a princely sum in anyone's book. And it's true, so I really have to fucking wonder where the bizzies pulled the million and a half number from.

I suppose it might have something to do with the people that got busted. Maybe they're more than folks who are a bit naughty and are your actual fully-fledged pikey undesirables or something. So when it all comes to court they're going to look like proper greedy bastards ready to swamp the whole of the north east of England with their mind-rotting drugs. Picture the scene:

Defence: "The plants were for personal use, m'lud"

M'lud: "What, a million and a half quid's worth? You're having a laugh and your clients can fuck off to jail for fifteen years each"

Yeah, the words "no fucking luck" spring to mind.

But there's a serious point to be made here, and it comes back again to how the dibble do things when it comes to drug busts and particularly how they place a monetary value on the gear they lift. I know fuck all will change cos growing dope with the obvious intent to supply is illegal and this makes all of us who do it criminal scum in the eyes of the law, but it's just fucking unfair. And especially when we all know that the polis aren't above skimming the goods they nick for a bit of extra beer money. But fuck it, that's another column.

And it almost makes you think seriously about moving down the road to Surrey.

Until the next time.

See ya.

JK
horribly_stoned_boy@hotmail.com

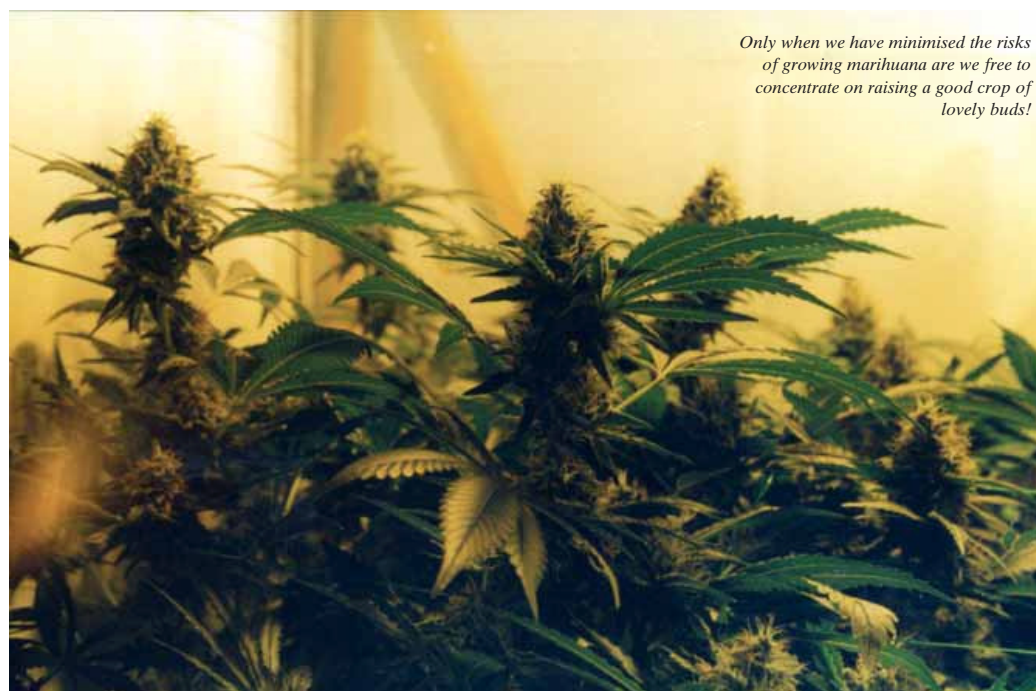
around, it needs to be as hard for them as possible to uncover what you're up to. Make no mistake, once your house has been flagged by the police and the electricity company as 'suspect', suspect of being a source of illegal electric tapping, then they can request a search warrant and come and comb through your entire place. Now no grow op is likely to escape a really thorough search, but the authorities do not have the resources or the manpower and so when

***That the winter months
also increase our
chances of being busted
is less well known
among growers***

the suspicion is slight, they'll just make a superficial check up. In short: people of one kind or another are going to be making short visits through your home. As growers we can use this knowledge to our advantage by making sure that our grow room is as well-hidden as possible!

Camouflage

The grow ops that I know of that have been around for ten years or more are mostly the grow rooms behind double walls and / or established in hidden rooms. For all these growers it has been a hell of a job to get their spaces as well camouflaged and hidden as they can, but eventually well worth the extra effort. So for example they might let the air leave the building via a flexible pipe secreted in the chimney, so that the warm air that rises will arouse very little suspicion. Another method that works really well is not to blow the warm air directly outside,



*Only when we have minimised the risks
of growing marihuana are we free to
concentrate on raising a good crop of
lovely buds!*

but via another space (such as the cellar or an empty room). The air is thereby allowed to gradually come to a decent temperature. Of course, you do need to use very good filters, since the intention is not to fill your entire house with a strongly-reeking hemp odour.

Beyond suspicion

A large moveable cupboard (no, not a grow cupboard) for our grow space is perfect. It can prevent a whole load of problems, and almost everyone will be suspicious when they find themselves before a suspiciously closed and locked

door. So bear this in mind. When we minimise the risks involved in growing marihuana, then our chances

of a long life of growing are vastly improved!

Did you know that many growers still make the mistake of removing too many leaves from their plants? By doing so the plant can take up much less energy, which will reduce the eventual yield considerably. In the last few days, sure, you can take plenty of leaves off and it won't do any harm, the lady will find this quite stressful and will pump up the buds even more as a response.

Weckels is a photographer and grow scene reporter for a number of Dutch magazines. He has achieved a certain fame in the Netherlands for his coverage of (indoor and outdoor) weed production, specialising in the documentation of outdoor plantations. Here, Weckels will discuss the growing of marihuana indoors. Take advantage of it!

Text & photography: Weckels, the grow-specialist from Atami



weckels
world of
wonders

Making Nederhash (using a Pollinator)

By-and-large, for the outdoor grower the winter months are a time when there is pretty much nothing to keep him occupied. Last year's harvest is well behind him; done, dusted and processed. Plus for most growers, it's too cold for outdoor activity. However, the winter months are especially suited for making your own 'Nederhash' – a hashish, by-the-way, that is of outstanding quality. So in this cold period of the year we do in fact have something to keep us occupied, an activity that is guaranteed to yield some top smoking Nederhash, as we Dutch have dubbed it.



In this photo you can see trim waste from outdoor grown plants. It's a shame to throw it away, especially when you think that you can get some top quality hashish from it.

Nederhash essentially means hashish made in the Netherlands. You often come across it in Dutch coffee shops in a powder form, because this is a sure-fire way of indicating that it was definitely made in our homeland. Hash from anywhere else is almost always pressed in order to make it easier to transport (it takes up less room, obviously). Sometimes Nederhash is made only with ice and water and when this is the case the hash made is so sticky that you never come across it in powder form. Just how one makes hashish from just ice and water I will leave until another time to tell, given that this time around I'm planning to tell you how to make hash powder. This method of making hashish is derived from time-honoured techniques and is often a more appropriate technique thanks to the fact that hashish made this way is often easier to mature and subsequently store. Once you've got hash powder you can keep it for years, and in contrast to weed, it often appreciates in quality (provided that you keep it cool, dry and in the dark).

Before we actually get down to starting to make our hashish, let us first look back to the harvest time, given that this is the source of our most important raw material (the leaf trim from around the buds).

During the harvest period we trimmed away the small leaves sticking out around the buds in order to end up with lovely, round-shaped buds. Once we'd got this little job out of the way, the buds were ready for hanging up to dry in our drying cupboards. Once you'd let these buds dry for a good ten days there's simply no way you could have avoided a great crop of outdoor weed.

But then the marihuana plant contains so many more valuable gifts than just the well-developed buds, and that's why many a wise grower never throws away these small leaves and under-developed buds, rich in THC as they are. These small leaves and under-developed buds, also known as trim waste, are indeed chock-a-block with THC crystals and resin glands that are highly valuable to us. The ever smaller pieces into which the trim waste and budlets are cut soon create a large pile, which is why it is worth your while letting this valuable stuff dry out rather than throwing it away.

The trim waste is best left to dry on a sieve, because it can more easily be turned over with the hands to prevent the interior moisture building up to mould-threatening

levels during the drying process. In order to advance the drying process a little, I leave a small ventilator on its side, blowing up through the sieve. Air circulation plays a crucial role in the successful drying of trim waste and flower heads. The air has to be kept in continuous circulation during the entire process, so that the moisture from the trim waste and flower heads can easily (with help from a suction pump) be expelled outside. After around ten days the well-developed buds (the less-developed ones sometimes a little earlier) can be removed from the drying cupboard.

For the drying of the trim waste I would even advise you to give it a good three weeks. This is a situation where 'the drier the better' really does apply, because the chances of a successful hash production is partly dependent on the dryness of the small leaves and under-developed buds.

Growing outdoors, there is never a guarantee of total success. In a bad year the making of a superior-quality hashish can make-good a whole heap of misery. Even in a good year there will be sufficient barely-developed buds on the lowest side branches left over, that despite a happy harvest, you can still put the icing on the cake of all that hard trimming.

This trim waste comes from plants grown indoors. As you can see, it is chock-a-block with THC crystals and resin glands, and therefore worth a great deal to us!



You will in any case have a bit of work to do, beginning with the storing – and therefore ensuring you dry – the trim waste. Sadly, just drying out the under-developed buds and small leaves is not enough for making hashish, so next we've got to separate the THC crystals from the vegetable matter. Because there are a lot of different ways of doing this, there are also a lot of methods, with or without involving modern apparatus, and therefore a variety of ways of making hashish. So there are methods that involve extensive beating of the trim waste with bamboo sticks or lengths of reed, methods well-known for example in Morocco, Afghanistan and other famous 'hash-lands' where they are well-suited. The trim waste often lies here on a very fine sieve and sometimes even on a sort of cloth, through which the THC crystals (that are very small in size) pass and are then caught.

Because I personally prefer - on balance - to use modern apparatus to separate the THC crystals from the trim waste, rather than whacking the arms off my body and even then probably ending up with an inferior product, I choose to hire a machine. Because buying a machine to make hashish can often be a very expensive undertaking, it is smarter for the (outdoor) grower who only has decent amounts of trim waste once a year.

But even if you decide to hire something, you have some choices to make between the many makes, such as the Skuff Buzzer and the Pollinator. What you as a grower prefer differs from individual to individual, but personally I give the Pollinator the edge. That is why later in this article I will be referring mainly to the method using this, even though using the other apparatuses on the market will make no difference to the operation.

The Skuff Buzzer is a sort of wide box fitted on the inside with a very fine sieve.

When you put the trim waste in and turn it on, the sieve vibrates, agitating the trim waste. The result is that the THC crystals fall by their own weight to the bottom of the vibrating pile and through the sieve. You can just stick the Skuff Buzzer on a table and after leaving it running for while, tilt it over to scrape off the hash powder. Even more handy is if you place the Skuff Buzzer on a mirror (shiny side uppermost!) laid on top of the table, so that the hash powder is easy to see. The smooth surface of the mirror also prevents the hash powder from sticking, and so makes scraping it together into one clump a lot easier. Scraping the hash powder together is best done with something with a hard, sharp edge - a credit card, for example.

The biggest difference between the Pollinator and the Skuff Buzzer is that with the Pollinator the trim waste is smashed up inside a similar box structure and constantly turned around and around. In this way the trim waste is pounded continually onto the sieve, which in turn shakes loose the THC crystals. The crystals are subsequently collected on a white plate which after a period of time (usually after letting it churn for 15-30 minutes) can be scraped together with a credit card-type implement.

Now that I have outlined the way both machines work it is time to set to making the actual hash powder. Having supplied a decent amount of dried trim waste, we have to make sure that we treat it right. The small and slightly larger buds we cut up finely, so that the THC crystals fall more easily from them, as well as the leaves, once the Pollinator starts to turn.

After this we check that there are no twigs hidden in the trim waste. Even small twigs (such as those that had once had buds on them) can cause a great deal of damage if they are left in the Pollinator. Any twigs present can be rock hard, because they are so dry, and can cause severe damage to the sieve (also known as the screen), with negative consequences for its effectiveness. Sieves such as these are not exactly cheap and once damaged are practically useless, because the quality of the hash powder - if you even bother to continue - declines dramatically. Once you get small bits of leaf coming through the damaged sieve instead of only THC crystals, the hash powder is no longer of a pure enough quality (plus there are bits of leaf in it).

Once we've sorted the trim waste well and finely chopped up any rough buds, I generally split it up into plastic ziplock bags (and close them as tight as possible). These bags are ideal because you can take the dried trim waste out easily, and just as easily put it back again once it's been processed. We can use the trim waste more than once; a second or even occasionally a third pass is possible (depending on the quality of the waste).

I fill each re-sealable plastic bag with about 80 grams of trim waste; in my opinion, this is the ideal amount for the trim waste to turn freely in a standard size Pollinator - and therefore the handiest amount. What's more, you can empty the plastic bag of its contents directly (with no need to weigh it again) into the box of the Pollinator. Of course, there are also larger models, right up to ones you could lie down inside the



Once you got your trim waste nice and dry, chop up the larger buds, so that the THC crystals can be more easily shaken off the buds and small leaves, once the Pollinator starts to turn.

box compartment of, but such models are rarely for hire and more than that, are way above the budget of the average (outdoor) grower.

Before we rush off to hire one of the two machines, you should put the re-sealable bags and the trim waste in the freezer; a day before is fine. This freezes the THC crystals and thereby makes them shake loose more easily from the under-developed buds and small leaves. Freezing the trim waste before placing it in the Pollinator to churn works a treat. An additional advantage of doing all this in the winter months is that you have a lower air moisture to deal with as well as a lower temperature. Thanks to the cold outdoor temperature the trim waste stays cold longer than if you worked with the Pollinator during the summer. That's a reason why you should also refrain from putting the heating on when you are at work with the Pollinator. There are even some smart growers who place their Pollinator entirely in the freezer while it's turning in an attempt to make the gadget work even more effectively. Naturally, you need to be in possession of such a capacious freezer, and of course check whether such a use is recommended (you don't want to void your warranty!).

Just to return one more time to the freezing of the trim waste issue: it is very important to do this in advance, otherwise you can't get straight down to work, at the moment you get the Pollinator or whatever machine in your hands. Growers who prefer hire a Pollinator or some such apparatus can often do best to get straight down their local grow shop. Always keep in mind that there is often a considerable deposit to be paid, because so many growers become so enthused by their first adventure into hashish production that they omit to bring the thing back again. Such practices have ensured that their rental is no longer as easy as it used to be and many grow shop owners have become rather choosy who they hire them to.

An alternative is to rent one with a group of

friends or colleague growers in order to split the costs. Sometimes growers will save the trim waste from a number of harvests in order to do it all in one go. This is a little cheaper (than hiring one every time you harvest), only you have to watch out for Mr Plod, given that he has a tendency to view 'trim waste' in a far more flattering light than we might. The courts too do not differentiate between trim waste and good bud, nor do they seem too keen to make that distinction. So you pays your money and takes your choice when you choose to start yourself a nice collection of trim waste.

Once we've got a Pollinator or some such apparatus in our possession, we can begin. Preferably put the Pollinator on a table, so that we have it at the ideal height for working with (your back will thank you). We remove a plastic bag from the freezer, empty it into the Pollinator's box and start this turning (making sure first that the clip on the box is well shut and the large catch is placed downwards). Usually I let the Pollinator turn initially for a quarter of an hour before I first scrape the hash powder from the white tray (see photo). Then I take out the trim waste again and put it back in the plastic bag, stick a number (like, or "1") on it and pop it back in the freezer. The number I wrote on the plastic bag is to make sure I don't go putting the same bag through the Pollinator (it's perhaps best to start keeping the plastic bags separate from each other). The hash powder from this

first churning is often very dark in colour and of the highest quality (Premier Quality, in fact).

You should not make the mistake of looking strangely at it when, after just 15 minutes, you have only a small amount of hash powder collect on your white plate. The process does not proceed all that quickly, but the quality by contrast of this tiny amount of hash powder is terrific. Moreover, small amounts put together soon create a decent amount, especially once you remind yourself that it would all have been thrown away (as pure waste). We keep the hash powder during the production process in another small plastic bag. At a later stage many people choose to store their hash powder in linen bags, in order to let the hashish "breathe" during the maturation process. I myself always keep it in plastic bags (also during the ripening stage because in my opinion it is better protected from damp from outside).

Once we have replaced the plastic bag with the trim waste, having used it first, back in the freezer, we pour the second bag of trim waste into the Pollinator box. We let this batch also sieve for a quarter of an hour and then repeat the above steps until all the trim waste (in various plastic bags) has been given one turn in the Pollinator. Next we start all over again with the trim waste from bag number 1, only this time we give it a half hour turning.

You will notice that the hash powder is somewhat lighter than the first batch, and I put it in its own plastic bag (Secondary Quality). And so back into the freezer goes bag number one. Again, once all the bags have gone through the process again, you'll find the bag of Secondary Quality hash soon mounts up.

But we are not yet finished with the making of hash powder and can safely run the trim waste through one more time. This time we let the trim waste churn for a good hour because most of the THC crystals are already shaken loose and collected, and a little less hash powder comes out. The hash powder we get from this third churn of the trim waste is really light in colour and of lesser quality still. But it is still worth the effort of reclaiming this light coloured hash powder, leaving us with three qualities of hash. There are many growers who simply mix all three grades together, in which case you end up with just one grade of hashish, but this is concentrated enough and you're still left with a good quality hash. For the still inexperienced smoker it's going to take no more than a couple of tokes to be guaranteed an interstellar trip. If in fact you find the Premier Quality really too strong, you can take the edges off it by



The day before we set to work, with the Pollinator, we place the bags of trim waste in the freezer.

To ensure that we don't keep getting the same plastic bags out of the freezer, we make sure that each one is given a number.



mixing it with secondary and tertiary quality; even then you're likely to be stoned as an ape. Once you have finished all the work and have amassed a nice amount of hash powder, naturally you'll want to roll a good biftah from a ball of it and get nicely trolleyed. And indeed you can, and will if you do so.

But the quality will be even better - supremely good - if you can just resist the temptation to smoke or press it straight away, but leave it a year so - longer if you like - safely stored. In this way the hash powder gets a chance to fully ripen (provided you keep it in a cool, dark and above all dry place) and the quality will gradually rise to stratospheric heights. This happens, among other reasons, because the grains of green leaf (that made their way through the sieve in small quantities) after a period of time die off. This improves both the taste and the quality of the hash powder dramatically. The hash you buy from most coffee shops or independent merchants has usually had a good period of time to ripen, only it is not noticeable, happening slowly, during the production and storage (in the country it was produced in). Even during its smuggling, if the hashish has been pressed, it was still able to ripen.

Of course, you can also use the trim waste from indoor growing to make Nederhash (or Brithash, I should say!) just as well. The small leaves and buds from indoor production tends to have more THC crystals in it than that from outdoor growing and it therefore goes without saying that you will also get more hash powder out of it. Because of this it is often the case that the winter months can be a golden time for the indoor grower: frequent low air moisture and low outdoor temperatures (allowing more lamps to be hung up and used than during the summer months). But it can be that indoor growers

Some breeds of hemp produce so many THC crystals that the hash powder is already starting to accumulate in the bag of trim waste.



have enough on their plates just trimming to worry about what happens to the trim waste. This is an opportunity for the outdoor grower with time on his hands who is able to spring immediately to work for a colleague in return for a share of the lucrative end product. Once you have made your own Brithash, I promise you, you will want nothing else. There is nothing lovelier than a nice pile of hash powder, made by your own fair hands, and of a superior quality to boot! I'll end by wishing all readers, growers and other interested parties a good New Year and in all probability, I'll be back again next year with new reports from the frontiers of my growing practices at Weckels World of Wonders.



When you have made sure first that the clip on the box is removed and the large catch too, the bag with the trim waste can be put in the box



Next we fasten the clip back on the box and slide the white tray underneath. Now we only have the outer catch to fasten and we're ready to roll!



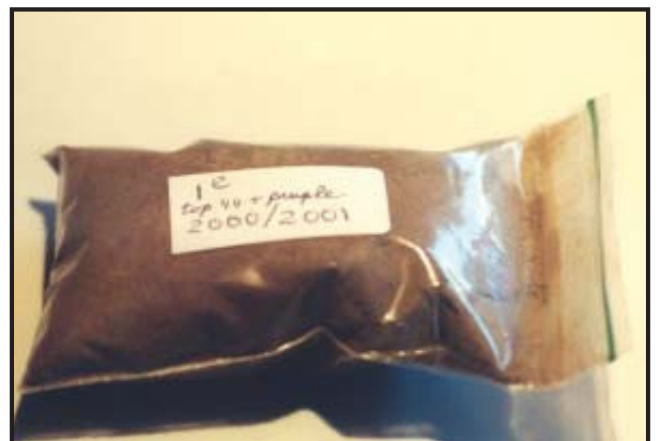
After a quarter of an hour's turning we unfasten the outer latch and carefully slide out the white tray. With the aid of a bankers card we can scrape the hash powder easily off the white plate.



The second time around we let the Pollinator turn for half an hour. A thick layer of hash powder is our reward.



A nice collection of hash powders from over the years. If you can quietly let it ripen, you are guaranteed a great quality hash.



Always write the production year, quality class and the breed of marihuana used (from which the hash comes) on the label.



In this photo you can see once again the hash powder. Real, 100% pure Nederhash!



weckels
world of
wonders

Weckels is a photographer and grow scene reporter for a number of Dutch magazines. He has achieved a certain fame in the Netherlands for his coverage of (indoor and outdoor) weed production, specialising in the documentation of outdoor plantations. In this series, Weckels will discuss the growing of marihuana indoors.

Text & photography: Weckels, the grow-specialist from Atami

Mothers & Clones

For indoor growing nearly all growers in the Netherlands are reliant on clones or cuttings. There is no land on earth where so many young ladies are shunted from one corner of the room to another, to be repeatedly robbed as a mother plant of her young shoots. This trade is very lucrative in the Netherlands (especially when one knows how to make real top class cuttings), but alas, thanks to the chances of getting caught, it's also rather dodgy.



Take-away clones, ready to order!

In previous times this was quite different, with whole greenhouses full of cuttings the rule rather than the exception. Making and selling clones was often more lucrative than the growing of the weed itself. Particularly when you had a reputation for delivering good quality clones and you had several varieties on offer, you were sure of a large circle of customers and a network of contacts. Alas, those days have dramatically changed for the clone dealer. Whether you're caught with 100 tiny cuttings or a barn stuffed with 100 mother plants, Justice doesn't give a toss: you'll pay. Similarly, the clone dealer is more frequently demonised as the source of all evil these days, and that does not do a great deal to encourage a light punishment. All of this adds up to a heap of stress for the clone business.

It does still happen that a grower 'forgets' to pick up his ordered clones, and that doesn't make things any easier for the clone farmer. By contrast there are also the growers who know how to bring down problems upon themselves, by bringing a veritable plague of insects home with the clones they just bought, for example. Fortunately there are clone farmers who sort this out tactfully and arrange for the frequently disappointed grower to get a free biological method of control. Anyone can make a mistake. Sometimes the clones are sitting there happy as Larry, when less than a week later they're already infested (with insect larvae), without there having appeared anything seriously wrong. Similarly, it is often the clone farmer who traded his clones trusting in good faith they were in top condition, and above all a bad name is the last thing he or she sat there hoping for.

that you do get insect problems after a couple of days, and as the grower you are convinced that they came from the clones, let the person you got them from know as soon as possible. Most growers this has happened to go green with indignation,

Happy is the grower who knows how to raise his own top plants from seed

then vow never to return. Alas, the damage is already done and maybe there are even dozens of growing sites infested.

Some growers really do have only great clones on the premises, but then the same breeds and varieties every time. For the growers who want to grow something a little different from the usual weed varieties, it is not particularly easy to get hold of another sort of weed, other than the couple available directly from the supplier. For many growers there is no

choice but to build themselves a nice collection of seeds with which to provide themselves with new strains. Happy is the grower who knows how to raise his own top plants from seed! Rare varieties, with exotically high levels of THC, a good yield and even a great taste too!

If you're successful and you end up with a number of potential mother plants raised from seeds, read in this instalment how we can select a beautiful mother from which you can harvest the clones you need.

Must

Before we can set to making clones, we first have to select a good mother plant. A

good mother ensures that we get good progeny - and that, as a grower, you'll notice! Important attributes I often look for to choose my mother plants are: a good, tight leaf cover (for optimal uptake of light), a strong stem and side branches (produce far more than pitiful ladies), the grow- and bloom-periods of the (mother) plant (determines the number of harvests per year) and perhaps the most important: the appearance and eventual taste of the (dried) flower clusters. Of course, every grower has his or her own preference and

Varieties

Be smart and check the clones well before you definitely buy them. In the eventuality



INDOOR

we will rarely be able to select the mother that fulfils all our expectations. But learning how to make your own clones remains a must-have skill, and as a grower you can do yourself a number of favours by acquiring it. When you make your own clones you can always be sure of young plants, that you know how best they can be raised to become superb adults, and save yourself a pile of cash outflow along the way.

Fibres

The best clones come from young growth shoots of between five and fifteen centimetres in length. It is vital that the shoots have complete and well-developed leaves in order to develop into a clone. Once we have removed a few shoots from the mother plant, we cut the base of the stem off with a slanting cut from a razor blade (these are ideal because they are so sharp). By cutting the stem at a slant, the stem has a greater surface area with which to take up moisture, and that increases our chances of success. Often, I remove a strip of fibres, so that the cutting powder

cutting powder. You must make sure not to get cutting powder on the slanted, cut surface of the stem, as the sap flow of the young clone might get clogged up and thereby die an early death.

Air moisture levels

When the base of the growing shoot has had cutting powder correctly applied, I let the growing shoots root in small blocks of stone wool. These blocks are ideal because they hold enough water, and enough oxygen for the young stems when the blocks dry out a little. Oxygen plays a crucial role in successful rooting in growing shoots, and therefore we need to ensure that the conditions for this are made as optimal as possible. So let the stone wool blocks dry out a little once in a while.

When all this has been accomplished, we can best place the yet-to-develop growing shoots in a special germinating tray. Here we can keep the air moisture content high, by sprinkling the clones with water and closing the germinating

bye-bye to a whole generation of marihuana plants.

Light cycle

To give the clones a little extra help in weaning we can place a warming system in the base of the germination tray. The

growing shoots sticking out of them, we can place the whole thing under growing lamps. These lights are ideal for letting the clones bed in and root successfully since they do not cause the clones to evaporate too much moisture and yet still provide enough light. Keep the light cycle on 18 hours and the growing shoots should rapidly begin to develop

By cutting the stem at a slant, the stem has a greater surface area with which to take up moisture

(which we apply immediately) can do its work better. Also, the bark of the marihuana plant can hinder the cutting powder from promoting the shoot from forming roots.

Once we've got the above steps out of the way, dip the stem into some water and after that dip the sides of the stem into

tray with its (transparent) lid. The young shoots can then take-up water through their leaves, and that will dramatically increase the survival rate of the yet-to-develop clone. Keep the process firmly in hand and don't go crazy with the air moisture, because clones can also be the victims of fungal attack. When Mr Mould comes a-calling, you can wave



This grow corner also depends on clones. There is no land in the world in which so many marihuana clones are doing the rounds as in the Netherlands.

roots of the marihuana plant adore a lightly warmed soil, and by providing this the growing shoots will better develop into clones. Once the germination tray is filled with a large quantity of stone wool blocks with

into lovely clones. As a last tip, I'll advise you to always take more growing shoots (and make clones from them) than you think you're going to need, since not every growing shoot will take root in the end.



By Weckels, the grow specialist from Atami

Skunk X

Thanks to popular demand, this time around I will be looking at a plant that guarantees success even for the beginner level grower: Skunk, the coffee shop classic with the incomparably sweet high. As a grower you have to make a right royal mess of things in order to avoid scoring a decent yield with a variety like the Skunk X.

For most growers just starting out, it is often the skunk varieties they first come into contact with, thanks to the fact that they do not place as high demands on the grower as the other, often much harder to grow, 'true' white varieties. Skunk X is a plant that can stand up to the most frequently made beginners' mistakes. Giving too much or too cold feed water, for example, is one of the beginners' mistakes that skunk can usually shrug off. But for even the most experienced indoor grower the Skunk X can deliver a good result, certainly when the size of your harvest serves to sharpen your growers' instinct. However, it's true that most indoor growers over the course of their careers move on to more demanding varieties (such as the Cytral plant that was discussed here in last December's issue), in order to broaden and extend their experience.

This takes nothing away from the fact that skunk still for a huge number of growers remains one of their favourites, and thanks partly to that it will be under the spotlight in this issue.

Bushes

Plants like the Skunk X are excellent for growing in soil; they grow fast, develop quickly and often bloom like a – well, like a very well blooming thing. Beginner-level growers generally plant their first couple of crops in soil as a way of getting the general arts of the grower into their fingers, so to speak. However, I will point out immediately here that growing on coco substrate can also yield excellent results when you're using a top-yielder like Skunk X, and if you feel like there might be a bit of a coco grower inside you, then it is certainly worth the effort to give this plant a whirl sometime.

For growing in earth we start with a pot of 25 litres or so. Precisely because these pots have so much room, the Skunk X plants can then develop into real bushes, and that translates into fewer clones needed and so lower costs. Why bother ourselves with a whole growing space full of small Skunk X plants and run unnecessary risks, when with half that number we can match and even beat the yield? The often small and therefore greater number of plants that growers frequently raise indoors in the hope of getting large harvests frequently means in reality high expenses. Thanks to this, this way

of growing has not for a long time been as lucrative as many people assume. The big disadvantage of raising many plants in a small space is also that the plants can end up competing with each other for the limited available light and nutrients. There is, after all, only a limited amount of space for each plant, and in the skunk varieties in particular, which love to develop wide and tall, there is nothing so frustrating as not having the room they want.

The fact that the well-known skunk sorts such as the Skunk X have managed to establish themselves as big yielders is thanks to the fact that these green ladies have an amazingly fat stem and develop heavy side branches, provided they are given the chance to do so. Whenever we as growers are in a position to give the Skunk X the chance (i.e. the space), then we have already conquered the first beginner's mistake

Feed

As for filling the pots with earth mix, I recommend going for lightly fertilised soil, so that we can remain in control of giving the plant sufficient nutrient mixed in with its feed water. You might say that a plant like the Skunk X, one that's almost bursting with its desire to develop to its huge size potential, is not going to turn its nose up at a bit of nutrition in its soil. But in fact a lightly fertilised soil will be plenty rich enough for its first two to three weeks, or pretty much the whole growth period in other words.

That this growth period lies a little on the long side is down to the fact that we will have left the skunk variety to get rather large, and so have given it a little more time in (pre-) growth. Do make sure that you make allowance for the fact that a plant such as Skunk X will continue to grow considerably more in height even once it has gone into bloom. If you are working in a low-ceiling space then it is worth stimulating lateral growth by simply snipping off the top of the plant (obviously, before it has developed buds of its own). In this way all the nutrients are diverted via the sap stream in the main stem of the plant to the side branches, which will in turn reward the attention by increasing considerably in size, which will later (during the bloom phase) translate into a much heavier weight of buds being able to be carried.



Even on the under-most branches you will find beautifully developed buds. We really need therefore to make sure that the plants are getting a generous dose of light.

Should you decide to 'top' your plants, do make sure that you do actually give the plants the chance to develop in width by making sure they have enough space on either side. Furthermore, we have to make sure to top the plants

at the moment that the top shoot has reached the height we want it to have. This may all sound quite logical, but there are still plenty of growers who quite happily clip the wings of their plants a half metre short in the hope that



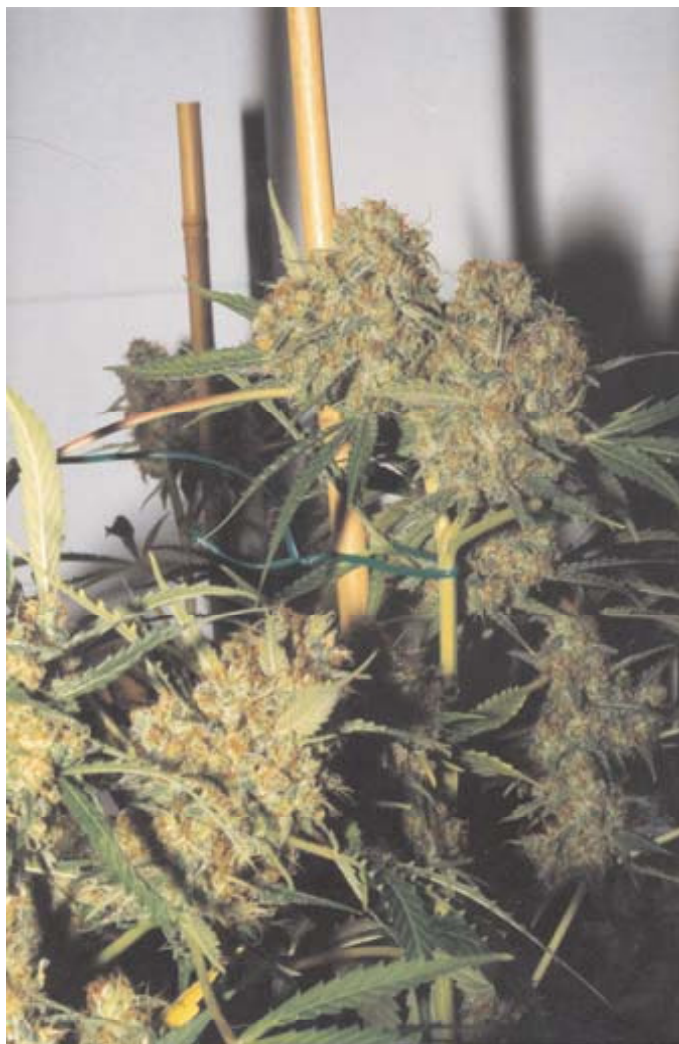
The Skunk X often develops strong side branches, especially when we let her enjoy a longer (pre-)growth. In this way the branches will be able to support a nice weight in buds.

The Skunk X has an enormous thirst for phosphorus (P) and potassium (K) during its bloom period

they will still reach the desired height. This often occurs when the grower has allowed the plants to keep growing in height a little too long, which makes a drastic pruning a necessity. Alas for the plant, in reality this trimming back of its height by a half meter now represents a severe wound, one which it will find difficult to heal. Excessive sap loss and a subsequent greater chance of mould infection in this critical, constantly moist spot (the wound) is the end result. So be sensible, and make sure that you only have to remove only the very top-most section of the main shoot. In doing so, the plant has sufficient resources with which to heal the wound and they will begin to produce scar tissue, which will keep sap loss to a minimum.

Light

To come back once more to the subject of earth mixes. During the growth period we give the plants only a booster, as a little extra nutritional support. We do this by simply mixing the booster with the water we give the plants. Although the Skunk X will not immediately hit the roof with small swings in the amount of booster of liquid feed added to its water (which we add at a later stage of its life), it is still advisable to use a small syringe from the chemist to determine the exact amount added. After a week or two or even three we pull the daily number of light hours we are giving the plants back to 12 and the plants will begin to bloom. During the bloom period it's a good idea to remove as many as possible of the large leaves. Skunk plants are well-known for the volume of leaves they produce, and that can act as a further drawback should they lead to any lovely buds being left in their shadow (where they will not be directly in the light from our lamps). Thanks partly to this, when I'm raising one



Skunk X is a plant that can stand up to many of the most frequently made beginners' mistakes

Here we can see once more the top of the Skunk X from close up. The weed smells not only nice and strong (the typical skunk odour), but the high is also superb.

of the better known skunk varieties I also tend to let them grow and blossom under relatively high intensities of light. A lamp of 600 watts is pretty much the minimum with which we should get down to business with, given the fact that their many leaves will serve to shield much of the light. Nonetheless, we cannot remove all the leaves (that would have disastrous consequences for the light uptake), and because we have given the plants a very generous period of pre-growth, it will not be long before the buds on the lowest side branches can also get enough light.

Enzymes

Moving on to the liquid nutrients we will be giving the plants during their bloom phase, it's best to go for the well-known bloom feed, and also add every two weeks some enzymes to the feed water to keep the salt accumulation down. As regards the bloom feed, we need a nutrient with an NPK level (as we call it in Holland) of 7:30:20. This golden formula is not well known to all growers, but the Skunk X in particular has an enormous thirst for phosphorus (P) and potassium (K) during its bloom period. When we as growers make sure our Skunk X plants have the above mentioned dose of bloom feed (mixed with water), then we will be spared yellow leaves and instead can look forward to a massive harvest. This also happens to be one of the biggest secrets surrounding the prize-winning Skunk X harvests, considering that all other dosages in which the quantities of phosphorus and potassium are lower almost always lead to disappointment!

Still more busts...

Joe Kane

At the risk of sounding like a stuck record, I'm going to talk about getting busted once again.

A friend of mine, it's not his real name, but let's call him Bob, lives in a high rise block of flats. He deals out of the house, grows a good amount of weed there, and also handles pretty big amounts of resin. He's no big fish by any means, but you know how these things go, readers. One day you've got two plants then before you know it the fucking things are taking over.

And so it was with Bob. Personally, I try to avoid letting the work thing overlap with where I live. Not keeping all the eggs in the one basket, you might say.

So anyhow, there's a domestic disturbance on the floor below where our friend lives, as some bonehead beats the shit out of his partner. Lots of screaming and crashing around, and the police are called. By the time they actually arrive of course, the party's over and everyone from the offending apartment has fucked off rather than have to deal with the old bill. The dibble, with thoroughness a

lot of people might find pretty fucking amazing, decide to do the rounds of the neighbours. When they get up to the next

floor, there's old Bob sweeping the landing with a joint hanging out of his mouth (this is a really fucking clever move for someone who lives in an apartment full of plants, resin cut into blocks, scales etc). So he gets nicked.

I've mixed feelings about this. When you live in a country like the UK where we've stupid fucking drug laws, you either try to not draw any undue attention to yourself, or you act like a tit as in this case. If you act like a tit, then you've got to take what's coming to you if you get busted.

But to get back to the story, the uniforms call in the drug squad and Bob's day just goes from bad to fucking worse. Bob reckoned he had, like, a kilo of weed, around ten ounces of resin (all cut up into various sizes of deals, just to make the job of the police a bit easier) and about 4,000UKP in cash lying about the place. Adding it all up, this lot is probably worth 15 years inside (did I mention that this wasn't his first offence? It just gets better, doesn't it?).

However, between Bob getting busted and being officially charged, a Key of grass has become 250 grams, the ten ounces of resin have become two

ounces (cut into quarters and eighths), and the 4K in cash has mysteriously shrunk to around 1K. Now when you add it all up, he's *still* looking at 15 fucking years. So we're talking about prison *and* being ripped off by the drug squad, which is a major fucking bummer for Bob.

Readers, I don't know what you think about this kind of behaviour on the part of the dibble, but I think it fucking sucks. Sure, Bob has broken the law (and whether you agree with the law or not is neither here nor fucking there), got caught, and is probably going to do some time. But what sucks is that the pigs can take the most of Bob's stock (750 grams of weed, 8oz of resin and 3,000UKP) presumably for personal use, and still put him away for the same amount of time as if it had all been there.

It's fucking immoral. Either bust him for the lot or 'confiscate' the lot and let him go. As it is, the fuckers get it all their own way: an easy pinch for the statistics and a nice bit of gear to sell on.

To paraphrase Raymond Chandler, in an ideal world, the police would be men of honour and integrity; in the real world, they have to take who they can get.

Later, JK

horribly_stoned_boy@hotmail.com

COLUMN

By Weckels, the grow specialist from Atami

The Big Strawberry

In this issue we are going to be looking at a very lovely weed variety that goes by the name of the Big Strawberry, thanks to her fine, sweet taste. This plant is very popular with smokers, while the positive growth traits of the strain make her well loved by growers too.

The Big Strawberry comes originally from Canada, more specifically that stretch known as British Columbia. Here the plant is often grown on a large scale, outdoors. Sadly for European outdoor growers the plant comes in to bloom very late (when you let her grow outdoors here) and for this reason, is not ready for harvest until mid-November.

In Canada this did not present a problem; they just left the plants outdoors growing in pots until the first signs of Autumn came along, then they dragged them en masse indoors to finish off their blooming. In the sparsely-populated lands of British Columbia, the growers nearly always tended to have a whole farm at their disposal or know someone with a large barn, so finding a suitable space in which the plants could finish their blooming was often easier than caring for the plants themselves.

After the growers of Canada had booked some great successes with Big Strawberry, it was the turn of the growers down in San Francisco. As the Southern neighbours grew increasingly interested in this beautiful plant, it was not long before it (in the form of seeds) was smuggled to San Francisco. Then not long after that the plant popped up in the Netherlands and since then the Big Strawberry has been increasingly grown there too.

Seeds

The biggest problem with growing Big Strawberry is that there are almost no clones available. In fact you can count yourself very fortunate if you get your hands on a couple of seeds. A grower who over many years has built up great experience with various and unusual cannabis strains is Lucas. Together with a number of other growers he has set up a sort of club in which the members exchange seeds with one another, or swap each other's clones. In this way Lucas has also managed to get hold of some Big Strawberry, and it is mostly thanks to him that I can now tell you more about this plant.

The most unusual thing about Big Strawberry is that she finishes blooming earlier if she is grown on stone wool rather than soil. The difference is about a week, and that is enough to make it more interesting for us to grow on stone wool. That a plant is ready earlier when grown on stone wool is actually very strange, because with the vast



The most unusual thing about Big Strawberry is that she finishes earlier with blooming if she is grown on stone wool rather than soil.



majority of hemp varieties, such as White Widow and K2, it is the plants grown in soil that are most often ready earlier for harvest. The Big Strawberry is one of the very few varieties in which this is not the case.

Clones

Should you be lucky enough to be able to get your mitts on a couple of clones, first check them for spint and

other pests. You would not be the first grower who with the help of another's clones also fall victim to someone else's troubles; namely pests that you bring into your growing space. You also need to watch out that the clones look healthy, i.e. they have lovely green leaves, and are preferably all of the same height. Buying good clones is half the job, and without good clones the growing experience for most growers can turn into a regular drama. It does not matter how well experienced you are; without good clones the frustration quotient can rise and rise, and that is not doing yourself any favours.

Before you stick the clones into stone wool, it is a good idea to soak your stone wool slabs first in a mixture of hydro nutrients and root stimulator. In this way you make it easier for the clones to get off to a flying start in developing their root system, while providing them with a little bit of food too. Count on planting four clones per slab (per stone wool mat); that's more than enough. More clones per slab will not improve your eventual harvest, since the plants will grow too close to each other and only end up in each other's way. What's more, there will be a lot of moisture trapped between the plants which will serve to raise your chances of mould infection. Fortunately the Big Strawberry is not particularly susceptible to moulds, which is another reason it is so well loved.

Lamps

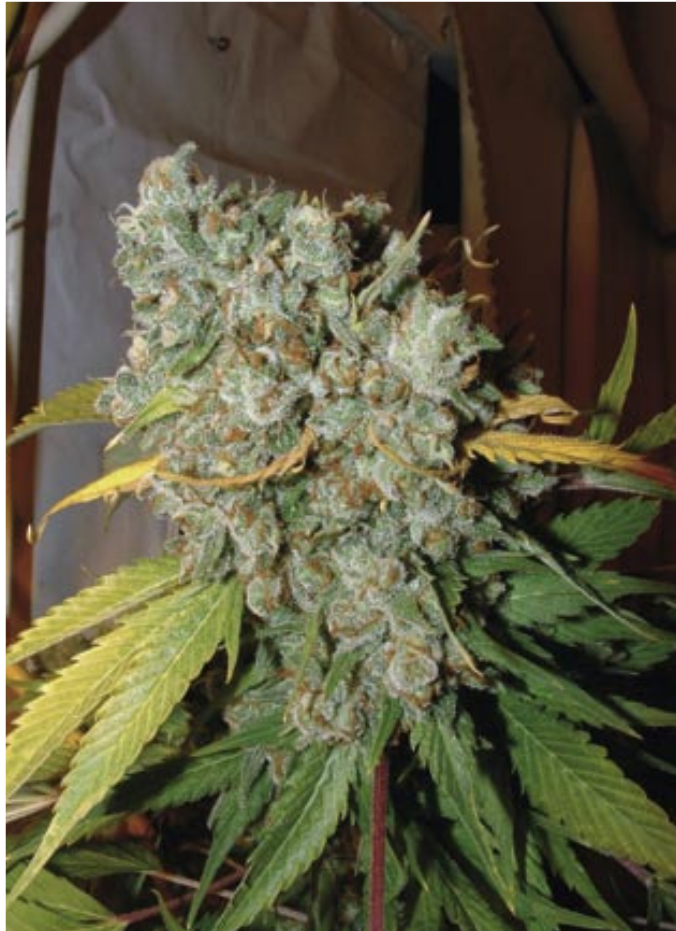
Once the clones have been safely placed into their stone wool mats then we need to sort out the lamps, making sure they do not hang too closely above the clones. Failure to do this could lead to the clones rapidly drying out, which in turn would mean you having to start again from scratch. Which is always a pity, the more so since the clones of a Big Strawberry are so hard to come by. You can also reduce the evaporation or transpiration from the clones somewhat by snipping off the tips of the large leaves. Simply cut across the breadth of the leaf. Of course you need to make sure that the clones still have enough (healthy) leaves left over so that they can take up enough light.

As for the lamps, it is perhaps a good idea to hang them as high as possible in the beginning. Once the clones have succeeded in gaining a good toehold by developing a full root system, then you can lower the lamps to their usual height above the clones. For setting the lamps at the correct height then a chain with links in it is a good idea, otherwise you can end up with the lamps all hanging at different heights, which will lead to your clones growing to different heights. And plants that are not growing at the same rate increase the chances of getting burnt patches on them.



Talking of the development of the roots, the Big Strawberry is one of the few varieties that takes root really well, and that can save you a pile of time and money, because nearly all your clones will make it through the first week (the critical phase) and therefore succeed. The clones, that with the passage of time (about a week) begin to develop into lovely plants, thrive best with a temperature of about 25 degrees Celcius, accompanied by a humidity of about 65%. The first week you can keep things more to the liking of the young clones by spraying them with leaf nutrient.

The young plants will now get lovely, green leaves and that is to the benefit of the light absorption. For a good supply of light, we let the plants grow under 600 watt lamps. These lamps have the best amount of light as regards the amount the plants can take up. In addition to this is the fact that, 1000 watt lamps for example use considerably more power, while the temperature in your growing space will be significantly raised by them. This can lead to problems, especially when you are growing in the attic and Summer arrives. The sun often warms the roof quite a bit, and if you have 1000 watt lamps blasting away as well, the two heat sources combined can



During the blooming phase you are best off removing as many of the large leaves as possible. The flower heads on the branches below will thank you dearly for it!

frazzle your whole crop to kingdom come. Of course, such events can also occur when using 600 or even 400 watt lamps, but such problems will occur proportionately sooner when using 1000 watt lamps.

In fact growing in an attic is often accompanied by problems in addition to this one just mentioned. For example, in the Winter you are at risk of your carefully concealed growing space being betrayed by a suspiciously snow-

free roof. Once the flakes begin to fall, transforming everywhere except your roof into a Winter wonderland, your temperate grow room will transform your roof into a homing beacon for Mr Plod. The turners of the wheels of justice will thank you for the simplicity of their task, and your un-seasonal harvest will be toast.

Blooming

Once we have allowed the plants a week of pre-growth, then we can crank the dial back to giving them 12 hours' light and thereby set the plants into bloom. From now on we give the plants a bit more hydro nutrition, boosters and a bloom stimulator. We need not worry ourselves unnecessarily when giving these babies nutrients; they love the stuff – although do not go crazy, all the same.

Since the roots at this stage are more than sufficiently developed, it does not make any sense to keep adding root stimulator to the feed water we give them. But we do want to add once a week some enzymes to their water, which will keep the stone wool slabs free of root diseases. These enzymes destroy and remove any dead root remains. And they help to prevent over-fertilization of the plants, because they also leach out the excess salt accumulations.

During the blooming phase you are best off removing as many of the large leaves as possible, since these produce serious amounts of moisture and in doing so raise your chances of getting bud rot. Also, large leaves can quite easily work against your chances of a good harvest, by stopping important light getting through to the flower heads that are lower down on the plants. As a result these will not develop as well as they might have done and you will end up with flower heads that are less potent. So bear this in mind.

COLUMN

Rock and a hard place

Joe Kane

Sometimes, just when you think life is shit and just cannot get any fucking worse, fate just kicks you in the balls again. Just for spite. And so it's been with my associate, Bob. I told you last time that he'd been busted in possession of a fair amount of weed, resin, money, blah blah, and how the amounts stated on the charge sheets were considerably less than the actual amounts he'd had, but still enough to put him away for a few years.

Well, the dibble let him out on police bail so at least he's not stuck in some nick on remand locked up with 3 other guys twenty four seven or any of that shit. At least he can drop the soap when he's in the shower and not have to worry about picking it up.

So I ran into him a week or so after the bust and he looked a fucking mess: broken nose, two black eyes, cracked ribs, fat lip, you get the picture. My first thought was that the police had given him a leathering, so I asked what the story was and it turns out he'd

had his head kicked in by some fucking goon on behalf of the people he was dealing for. I'd

always thought he worked for himself. You learn something new about people all the time.

Anyway, turns out he's working for some sociopathic little hood with anger issues. A really bad fucking call, as it turns out. Not only is he busted and facing a stretch in the big house, but now some tough boy wants his money and/or his gear. The kicking he got was just "a little taster" of what's to come if he doesn't cough up. And of course, little hard man knows lots of other little hard men currently enjoying the hospitality of Her Majesty, so whichever way you look at it, Bob's probably fucked.

Okay, we're talking about what to some people might be a serious amount of money - somewhere in the region of 5K - but to the characters I'm talking about this is like small fucking change, you know? The problem with tough guy gangster wannabes is that they're all piss and testosterone, always feel the need to prove themselves, and always feel that everyone should show them "respect". Add to this heady mix constant use of the Columbian marching powder and you've got

a recipe for trouble.

Bob, rightly, is shitting himself. His argument is that, yeah he was a twat and got busted, but that he's taking the rap for it all, told the police he was working on his own and is therefore (unless he gets a pretty sharp lawyer) facing a hefty sentence. Bottom line: this is a high risk business and he lost out and he's going to face the consequences. End of story.

Except, of course, that it's not. If the tough boy sat and thought about this straight and reasonably, he'd understand Bob's situation and write it all off, no hard feelings and see you when you get out. But no, cranked up on charlie, reason goes down the shitter and he thinks he's Al Capone, and he thinks Bob is taking the piss.

What the fuck do you do in a situation like that? What Bob's done is to continue his run of unwise decisions by skipping out on his bail and going to ground somewhere. Nobody apparently knows where he is, not the dibble, not the psycho, and certainly not me. Wherever you are man, be cool.

Joe
horribly_stoned_boy@hotmail.com



weckels world of wonders

Weckels is a photographer and grow scene reporter for a number of Dutch magazines. He has achieved a certain fame in the Netherlands for his coverage of (indoor and outdoor) weed production, specialising in the documentation of outdoor plantations. Here, Weckels will discuss the growing of marihuana indoors. Take advantage of it!

Text & photography: Weckels, the grow-specialist from Atami

The Harvest

In this article we are going to be looking at the harvesting of marihuana plants, and in particular what we need to do in the last two weeks of growth by way of preparation, and any extra attention the plants might benefit from. That the weed harvest brings with it important points of attention is something that many growers will endorse. After all, it's not for nothing that we have been slaving away in the pursuit of the best possible care of our plants, and we want to see a good return on our investment! In this episode of the Wonderful World of Weckels, some tips for the finish.



The buds are quivering with eagerness to be harvested. The THC-threads are for the most part brown in colour.

Given that these days many different varieties of marihuana are grown on both sides of the North Sea, it's worth noting that these varieties will have their own characteristics and preferences during their blossoming phase. So one plant will, for example, tolerate a much higher dosage of PK13-14 than the other, and also the quantity of bloom stimulator required will vary from plant variety to plant variety.

As regards PK13-14, this feed water additive can bring a blossoming plant into ecstasy, provided we proceed with it very carefully. I always choose to introduce it as early as possible in order to let the plants get used to it, so that I can then gradually increase the dosage.

Test plant

Especially with long-blooming varieties this works superbly and we can get the flower heads optimally acclimatised to the PK13-14. Always keep an eye on the plant's leaves, as they can tell you much

more than many growers think. The number of fingers on the leaves can also quickly tell you as a grower whether the plant has everything just how she wants it. Above all bear in mind that it is always better to give your plants too little nutrients and additives than too much. This is because an over-fertilisation often produces far more serious consequences than when a plant has too little.

There are some growers who consciously choose to set one plant apart from the others in a pot between them. This plant then serves as an experimental pioneer, charting the bounds of its variety on behalf of its sisters. In such a way we can try a lot of things out without risking losing our entire crop. Should something go wrong that the 'test plant' finds not especially to its liking, then in a worst case scenario we will only lose this, and the others can be left to continue blooming at their current (safe) dosage. This

method of growing works fine provided that the test plant is kept in good condition. If this is not possible then we run a large risk of reaching a wrong conclusion, because we are led to believe that the condition is the result of a shortage of nutrition and/or additives, and that's why the test plant looks in bad shape. This would of course be a shame.

Dark hours

During the entire flowering period we have tried to keep the air moisture level as low as possible, in order to keep the chances of a fungal infection as low as we can and allow the blossoms to develop at their leisure. During the light periods, this is not a problem for most growers. It is during the hours of darkness that the risk is greatest. The air moisture content at these times can become dangerously high (above 70%) and has led many a grower to break out in a cold sweat. Besides raising the chances of fungal infection, these

conditions can also stress the plant terribly, given the huge swings that result between the air moisture levels of dark and light periods.

The best solution to this problem is to get yourself a professional air dehumidifier. These pieces of kit have transformed many a swampy grow space into a veritable paradise for the blossoming plants. Air moisture levels are brought under such precise control that there is barely a difference any more between light and dark periods of the cycle. The results are one relaxed grower and a well-protected (future) harvest.

Marihuana gets a much finer taste when you give it the time to dry out gradually

Drying

Once the plants have developed their flower heads to the optimum and have grown nicely in size, we can begin our preparations for the harvest. First off, it is important that we look ahead to where we want to harvest, and where we want to dry the crop. There are growers who make a positive decision to do both in the same (grow) room. But when we choose to let the marihuana dry outside of the grow room, then we can get the latter prepared immediately for a new crop by putting new plants into pre-grow. Such quick turnaround growing practices can often automatically make more harvests per year possible, and are therefore well worth consideration.

The best solution is when we can let the weed buds dry out in the room next door to the growing space. In any case, I strongly recommend against hauling around and packaging freshly harvested flower heads. Besides the fact that this extra activity increases your chances of being busted, the flower heads are much too sensitive and even with quite minor disturbance can be severely damaged. Furthermore, trimming can go a lot more easily when we can set about the buds with the shears directly they are removed from the plants. Removing a whole bunch of flower heads from the plants and then trimming them all together often does not work out so good, given that the leaves rapidly begin to dry out and crinkle up. This does not make the trimming any easier and therefore takes more time in the long run.

Preparing for the harvest also means that in the last week we add no more liquid fertiliser and/or stimulators to the feed water

White threads

Once we have decided where we are going to let the flower heads dry out, the first thing we do is check that the sheers are good and sharp. If not, get them sharpened immediately. I personally have always been an advocate of each person who is trimming having more than one set of sheers. In this way they can get on with the job nicely and not have to stop every half-hour to get the sheers sharpened - they just switch to the other sheers.

Preparing for the harvest also means that in the last week we add no more liquid fertiliser and/or stimulators to the feed water. The plants are given only water as a way of cleansing the flower heads and thereby achieving a much better taste. In the last week we also need to keep a close eye on the white threads that cover the flower heads. As soon as these white resin glands (also known as THC-threads) begin to turn brown then they are almost ready to harvest. Once two thirds of the THC-threads are brown in colour then we can actually start harvesting. It will happen from time to time that the one plant is standing there bursting to be harvested while the other has but a few brown-coloured THC-

threads on its flower heads. This presents no problem - we just harvest the buds that are most ripe first.

Moisture

Once we have removed a branch with buds on it from the plant, we take off the large leaves first. These need to be removed from the drying room as quickly as you can, since they contain a lot of moisture, and as they release this the air moisture level can raise to dangerous levels. Next we trim away with (sharp) scissors or sheers the sticking out leaves around the buds, so that we eventually get a lovely rounded flower bud. Once we have done this, we can snip the bud off the branch. In this way we end up in principle with loads of little rounded bud balls, which we place on a sieve (in a drying rack) to leave to dry.

Taste

For the marihuana to fully dry out takes outdoor grown weed about eight to ten days. Indoor grown weed is usually dry within five or six days. Maybe this sounds a long time, but marihuana gets a much finer taste when you give it the time to dry out gradually. Far too frequently growers try to speed up the drying process by for example putting a heater on. This is really a mortal sin towards the weed, which will end up with a sharp taste.

During the drying process it is also important that the air is kept in motion, so that the moisture that is coming off the flower heads can be expelled outside. The air can best be kept in circulation by means of a ventilator. Do make sure though that the ventilator is not pointed straight at the flower buds. If you let this happen the buds will dry out too quickly on one side.



We dry the buds out on a special drying rack. The rack consists of a number of sieves hung one above the other, in which the buds dry out really well.

The best solution is when we can let the weed buds dry out in the room next door to the growing space. In any case, I strongly recommend against hauling around and packaging freshly harvested flower heads

Sieves

We dry the buds out on a special drying rack. The rack consists of a number of sieves hung one above the other, in which the buds dry out really well. What also gives a drying rack a great advantage is that on one of the sieves we can also dry out the trim waste. I know

most growers just throw this away, but that is a great shame, given that you can make a really good hashish from it!

I'll finish by wishing all growers a good harvest, and I hope that I have managed to pass on some useful tips once again.

Stay tuned!

Barrier free hemp guide



Absolutely indispensable within a border free Europe - the first International Highlife Guide is nothing less than an international 'who's who' within the European hemp industry. Nowhere else will you find a

guide so comprehensive and so complete that covers all companies doing business within the cannabis sector. From Amsterdam to Barcelona, Berlin to London, Zurich to Madrid, 'you name it'; this guide will provide you with thousands of addresses, in villages and cities, where professionals are actively working with cannabis products. This standard work contains 338 pages and is an absolute must for your bookshelf. And the best part? The International Highlife Guide is being distributed for free! Developments within Europe are unfolding at a rapid pace. Borders between countries participating

in the European Community have become almost meaningless as business within Europe takes on a more international aspect. Developments within the cannabis trade have not been at a standstill either. Until the nineties of the previous century, there was a thriving hemp industry in the Netherlands, but that has seen changes recently too. Countries such as Spain, Great Britain, Germany and Switzerland suddenly list thousands of companies active in the cannabis sector. And with the progressive economic unification of Europe, this trend can only increase. The hemp industry has shown a consistent rise in growth over the past few years. To state it in 'green jargon', "We have not let the grass grow under us". Discover Publisher recognised the growing internationalisation of the cannabis sector and decided the time was ripe for a standardised work listing all European companies engaged in the cannabis trade.

After intensive preparation and thorough research whereby a huge mass of information was assembled, the publisher of Highlife, Soft Secrets and La Maria now presents the International Highlife Guide, condensed to fill 338 pages. Never before has there been a comparable guide that lists so much accurate information about the international hemp industry. And believe it or not - you can get your own copy, completely free of charge! The International Highlife Guide has been published in two parts and is simplicity itself to use. The first part contains information relating to the Dutch cannabis industry and is arranged alphabetically per city. The different companies have been divided into separate categories such as, coffeshops, wholesalers, growshops, Internet and media, smokers paraphernalia, smart shops and

seed companies. The Dutch section concludes with a chapter titled 'Other', which lists any other businesses or organisations.

The second part of the International Highlife Guide consists of an overview of cannabis related companies active in other countries. Separate chapters contain information about Germany, Spain, Switzerland and the UK. The addresses of the different cannabis companies have been alphabetically arranged and listed under the cities and villages of the various countries. There are two categories, one for retail shops and one for wholesalers.

As mentioned before, such a complete and expansive reference work listing so many hemp enterprises has never been published previously. This full colour guide is certainly indispensable to anyone who wants to stay abreast of business opportunities within Europe. With the International Highlife Guide, the growing European hemp industry now finally has the international business listing reference book it deserves. Make sure that you get yourself a copy. Ask for it at the place of business where you do your shopping and find your way about in cannabis-loving Europe.

**International Highlife Guide
'Guide to the Hemp Industry'
Discover Publisher Ltd.**

Freely available at the better grow/head/smart- and coffeshops throughout Europe. Also available at various international hemp trade fairs.

For more information call: 0031-(0)73-5498112

By Weckels, the grow specialist from Atami

The power of Cristal



Cristal produces lovely white buds and thanks to this it is loved by growers and smokers alike.

This article is going to be all about what I consider to be an extremely cool plant, namely Cristal. This very special variety has buds as white as if frosted with icing sugar, and it is for this reason that her popularity has grown as an indoor variety. The commercial growers among us especially cannot contain their glee when the dried buds appear to be bursting with their little crystals. The whiter the variety, the sweeter the high, the happier the smoker – and the richer the grower. This is quite simply because weed that looks good and has obviously been given the time to dry out properly is often worth much many times more than your average run of the mill weed bud.

That the unnecessary speeding up of the drying process often has negative consequences for the taste and so too for the overall quality of the weed is a fact. Even the best looking flower heads can fall in value considerably if the taste is considered too sharp when they are being consumed. This is why you should always make sure to give your weed at least 8 to 10 days to dry out fully. Maybe this sounds overly long, but marihuana develops a much finer taste to it when you give it enough time to dry at the right pace, than when you have strained to get it done in five days. All too often growers try and speed up the drying process, for example by put the heating on in the drying space. This is a crying shame for the weed, certainly when you're talking about the rather more expensive, often white varieties.

Nutrition

Cristal is a plant that likes a good feed, doesn't turn her nose up at a good supply of light, and above all produces lovely white buds. In addition, Cristal has the great advantage that she only needs around eight weeks in order to come into bloom, which is something you don't get with the other varieties, that often need a good 10-12 weeks to produce comparably white buds. Even so, a Cristal plant will usually produce a lower yield than your average Skunk variety, but fair dues, Cristal often produces a prime quality weed. As well as this it should be said that a Cristal can lead to some surprises, and quite often it is the interventions of the grower that largely determine the yield.

As a grower you can of course choose to raise something with a big yield, something that the well-known Skunk varieties guarantee. But besides the fact that these produce large volumes of weed, the buds have a tendency to be not as good looking (in comparison with the long-blooming white varieties), and thanks to that they can fail to demand as

good a price. The real white varieties by contrast do very well on the price they can command, only they often bloom for a fair bit longer and that can be a demand on the patience of many a grower. The long-blooming varieties also use more nutrients over their lifetime since you have to keep feeding them for another four weeks longer than the average weed plant. By the same calculation, your energy use goes up quite a bit, though I guess this point is only of interest to those growers who actually pay for their own juice, since their electric bills will see a prolonged surge from the demand created by their 'green rascals' staying in bloom longer. Many growers have found their own solutions to this problem, and some choose to go in search of a hidden energy cable and know that with a bit of tampering about they can keep their inflating costs down. But the illicit tapping of energy is not without risks and many a plantation is dismantled once Plod, working with the close cooperation of the energy suppliers, is known to comb entire neighbourhoods looking for such activity. There's often no escape from such hassles, other than choosing to be a somewhat smaller home grower with just one or two lamps, who also pays for his or her own energy. What you choose to do as a grower, everyone has to decide for themselves. Only it is often the smaller grow ops that stay in business the longest, due to the fact that they are a bit harder to find out about.

Before you run off and start tapping the energy cables or paying for the stuff honestly, you're going to first need to get some kind of idea what energy facilities are available and the number of energy groups that lead to your space. It often happens that growers (and here I'm talking about the real 'big boys') accidentally knock out the electricity supply to a whole village or part of a town, by tapping recklessly or connecting up growing apparatuses of to a domestic plug socket. Dramas like this can have very irritating consequences, especially once your grow op is discovered and you also start to receive claims for damages (from for example factories that lost production). Things can get nasty.

White tale

To return once again to our discussion: the white varieties stand around in your grow space for longer periods than the shorter blooming varieties, which means of course fewer harvests per year. Cristal among all the white varieties seems to be one of the exceptions to this, because she has a short bloom period, which means with a bit of luck you can be digging your trimming shears out of the cupboard in just eight weeks, and just 10 days or so after this be finished with the whole harvest processing. This can sound like an impossible sprint to growers accustomed to growing varieties that, after a couple of weeks' pre-growth, need another 10 weeks of bloom. A simple calculation will soon show you that for example with a variety like Cristal you can get nearly three harvests a year, in the same amount of time in which it takes a long-blooming variety to squeeze out two

harvests. Advantages like this have made Cristal very popular with commercial growers, because she looks great and still has that relatively short bloom period. However, the eventual yield you achieve is not only a function of the variety you choose to grow. There are many more factors that play a large role. A good rule of thumb is that you're a decent grower when you're getting 1 gram of weed per watt used, and you can rightly ask yourself if your growing performance are nicely in accordance with the possibilities of the variety. Sure, you don't want to go chasing after this blindly and with some varieties, ones that can produce considerably less weed, you can consider yourself happy if you manage to get more than a half gram per watt. Therein lies the art in this business, getting the best possible harvest out of each particular variety you grow. But it is true that increasing your yields is not as easy as people used to contend. It's thinking like this that has prompted many a grower to try and boost his yield by simply hanging more lamps above his plants, or more seriously than that, by just giving them more nutrients. The result is often a massive increase in temperature, poorly growing plants and a disappointed and stressed grower (and that's not to mention the dramas that can unfold from over-feeding). You can never (with the odd exception) simply just bosh a



A pretty patch of Cristal plants. The ladies have only just begun to bloom but are already bone white.

couple of extra lamps up, without taking into account your air extraction and ventilation capabilities and the size of your grow space.

Warmth

Every lamp added to your grow space also brings a bit more heat in too, so raises the temperature in the space. If you have a nice big air extractor, just crank it up a notch and the problem of the higher temperature is solved. But often this is not as easy as it sounds, because in the first place you have to already have a large extractor fitted, and secondly there is the extra problem of the added noise of running it at a higher level. The harder the extractor has to work the more noise it will have to make, to the point where it can really start to do your head in. Especially since most growers have their lamps set to burn at night (to stop the temperature inside getting too high), they also have to let their extractor do the most work at night too (and so make more noise), just at the time when the neighbours are going to be most sensitive. I say all this just so that you keep in mind when you're buying your extractor that it may make more noise than is desirable should you need to run it flat out. Some extractors produce so much noise that they can sound almost like a washing machine spinning in a cave.

Light

Cristal is a variety that loves its light and for that reason you can safely hang your 600-watt in your grow space. 400 watt lamps produce quite a lot less light and 1000 watters do not really increase yield enough to make them worthwhile. It can be a good idea to use 400 watt lamps as supplementary lighting in the darker corners of the space (just take a look at the corners of your space) or for providing just that little bit of extra oomph, without raising the temperature too drastically. Because Cristal plants love light and since every hemp plant has its yield dictated largely by the amount of lumens it receives, you will need to replace your lamps regularly. You frequently hear growers waxing lyrical about the golden harvests of yesteryear, before complaining about the harvests they manage these days. This discrepancy often arises for the simple reason that they are still using the same lamps for growing under. It has been known for some time that the light quantities emitted by the lamps drops drastically after just two or three harvests, so try and keep this in mind and replace your lamps regularly. It will do wonders to your harvests and thereby your wallet, while also doing wonders for your mood. Once the Cristal plants have rooted, we cut back the number of hours' light we



This Cristal has been blossoming for two-three weeks. From below to the very top it will gradually develop thick flower heads.

give them to 12, which will ensure that the plants come into bloom over the next two weeks. When the buds begin to develop, we place a plastic net between the plants. This net keeps the buds nicely separated from each other and helps the plants support the weight of the buds as they increase in size and weight. Using such a net will definitely improve the size and quality of your buds, because they will not be hanging limply down but will still be getting good levels of full light. This will also reduce the chances of developing bud rot and other moulds because the buds will not be lying touching each other. But do take care that the plastic cord (of the net) does not cut into the buds or damage the stem or side branches of the plant. The more ham-fisted growers among us should take especially good care that the net is not allowed to droop into the walkways between your plants. If you were to trip over the net, total chaos and severe (financial) damage can be the result.



weckels world of wonders

Weckels is a photographer and grow scene reporter for a number of Dutch magazines. He has achieved a certain fame in the Netherlands for his coverage of (indoor and outdoor) weed production, specialising in the documentation of outdoor plantations. Here, Weckels will discuss the growing of marihuana indoors. Take advantage of it!

Text & photography: Weckels, the grow-specialist from Atami

Top 44

Top 44 is perhaps one of the most-grown indoor varieties of marihuana. This commercial plant is loved above all for its combination of a short time taken to bloom coupled with a high yield. Although most growers know this plant as a real indoor variety, there are also very good yields to be had growing it outside. This time in the Wonderful World of Weckels: Top 44.



We support the young plants with bamboo stakes.

In this way the plants get full support and they will (at a later stage) produce much heavier flower heads.

Top 44 produces an endless quantity of leaves and thereby makes the light absorption considerably more efficient than varieties less well covered. Thanks partly to this, the Top 44 variety is well-suited to outdoor growing, since the plant also has a very short blooming period and can therefore absorb enough light, even when the sun in our latitude fails to turn up once again. Furthermore, Top 44 has very little susceptibility to mould infections, which cause barely any trouble even when it is grown outside.

Air moisture

The biggest problem with growing Top 44 indoors is that it is a variety that gives off enormous quantities of moisture via her large leaves and closely-packed leaf coverage. Top 44 needs plenty of air moisture meters installed in the room it is being grown in. During the growth period this on its own has nothing but a positive effect (provided it doesn't get too swampy in there with all that air moisture); the young clones grow like maniacs and develop much better when they are raised in an environment rich in moist air. Later, during the blooming period, this high air moisture can really

play a critical role and demands that the grower does whatever he can to get this down to as low a level as possible and keep it there. Make sure in any case that you have adequate air expulsion and remove the larger leaves, which will often provide a substantial improvement.

Bamboo stakes

Precisely because the clones grown indoors under ideal circumstances shoot up so fast, it's a sensible idea to support the young plants with bamboo stakes. In this way the plants get full support and they will (at a later stage) produce much heavier flower heads. During the growth stage the bamboo stakes can best be placed between the plants, given that they are not yet fully-grown and we must be able to move around freely throughout the growing space. Furthermore, it is also wise to allow the plant to grow above the top of the bamboo stake, so that the tips have plenty of room and so can get their full dose of light. This last point is especially important, since it can result in a marked improvement in eventual yield. When it comes to choosing the most suitable growing medium in which to

grow the (Top 44) plants, most growers plump for earth mixes. These mixtures (frequently with various fertilisers mixed in) are very well suited for use as a sub-soil. If you do this too, make sure that you first allow the clones to root in 'poor' earth mix, also called 'cutting earth'. These soils contain no added fertiliser at all, which allows the small roots to develop far better. Make sure that this layer of earth is still airy enough by mixing a good dose of perlite in with it. By doing so the plants can develop their root systems many times faster than if we just shove them in the soil haphazardly. Top 44 is so great to grow in an earth mix that we can, for example, put it on a table for growing. The big advantage of this is that there's almost never any damp patches left behind, because the plants always manage to slurp up all traces of feed water. Furthermore, you can use a drip system to easily spread the feed water as evenly as possible over the layer of earth.

Trick

The only drawback of growing only on a layer of earth is that it is almost always impossible to remove any poor-growing

plants with any ease. That is reason enough for some growers to grow their plants in flower pots. In this way they can move the plants around as often as they like, and it is often a bit easier to ensure that the plants are all growing at the same height. When the earth really is airy enough, it can also pay off to move the plants to grow in a layer of earth - provided that you proceed with a degree of carefulness. A trick here is to not just stick a number of clones into the earth, but to set the stone wool blocks (in which they stand) on a layer of perlite. If we let these young clones simply grow alongside, then we can always use them to replace the poor growing plants. I usually remove the poor growers immediately. During every crop there are always a few problem growers among the plants, and these often provide nothing but frustration and/or unnecessary problems. Furthermore, poorly developed plants rarely provide any decent buds, so all-in-all we are better off replacing them with good growing plants. A poorly performing plant will rapidly be overrun by their more enthusiastically growing sisters and will often die anyway as a result before they even get into flower. What's more, dead plants will attract a veritable plague of moulds and or pests, and before we know it they will become the source of a failed crop.

Mother plant

Sometimes it is not just a few plants that grow differently from the rest, but it seems as though two entirely different varieties are being grown together in the same growing space. You regularly hear of growers who have a space packed with plants out of which half are almost ready to be switched to the flowering stage, while the other half are considerably less well-developed. Many growers then begin immediately to re-build the whole growing space and/or hang more lamps above the less well performing plants. Frequently, despite all the effort spent, the cause lies in the simple fact that the clones are not all from the same mother plant. It is no wonder then that one half grows several times faster than the other. If you cannot get both groups of plants to grow at the same height, then the next problem will start to mount up immediately: When the plants are not all from the same original mother plant, there will not only be problems with different growth patterns, but also the bloom period may be totally different too. Furthermore, the flower heads will also differ in appearance and this can have negative consequences when it comes to



After a period of time the tips grow up above the top of the bamboo stakes. Now the buds will be able to develop really well.



This patch has grown reasonably at the same height. We must make sure to keep a close eye on the air moisture during this period.

flogging the whole crop (once trimmed and dried). Most dealers get a bit suspicious when they get the feeling that they are being offered a batch of mixed up weed buds.

Often you can find it hard to retrieve the batch from the gutter into which it has been slung (literally or metaphorically), and your motivation for the next crop sinks to zero.

TL-lamp

To prevent this situation, a good initial buying decision (making sure all your clones are from the same mother plant) is half the work. That is also why it is a shame, when we have got hold of a nice

batch of clones, to put them all into the growth stage and later the flowering stage together. You should consider taking a couple of well developed plants out before the flowering period and put them under a TL-lamp to keep growing. We can then select the best looking plants with loads of branching, since these will also yield the most clones, to be mothers.

If we let these plants (the ones we removed before the flowering period) have a little more time to keep growing under a TL-lamp, they will increase to a good, sturdy girth and within the shortest possible time we can take complete clones off them (for the first subsequent crop). The TL-lamp is very well suited to

this, since it uses little energy and furthermore, the plants will not receive too much light. The lamps that we use in the grow space are not really suited to this task, since they will make the plants grow much too quickly. By using TL-lamps, we easily straddle the time period during which the other plants (those we allowed to go into the flowering stage) are further developing their flower heads. If we take clones directly from the plants put aside for this purpose, then after a week or two these will be itching to be planted. But we will have absolutely no room (since the grow space is already jam-packed with flowering plants). In order to avoid this situation we first

allow the selected plants a little time to keep growing under a TL-lamp. Anyway, these lamps are also ideal to let the clones develop their roots under. It is precisely with the short-blooming varieties such as Top 44 that this way of growing works outstandingly well, because we have the clones ready to hand to plant as soon as the other plants (the ones that have been put into the flowering stage) are harvested.

What's also great is that we now know precisely under what conditions we can best raise this new batch of clones, since we have just grown their predecessors successfully!

Gettin' High With the Hemperor

by Kristie Szalanski

At this year's 16th annual High Times Cup, the THC-weary and willing to learn were enlightened by several lectures and Q&A sessions, hosted by Jack Herer. Soft Secrets was lucky enough to spend some time chatting with the hemp hero. A noted author, activist, and educator, he published the now-legendary *The Emperor Wears No Clothes* in 1985. This is the kind of book that you immediately buy for someone else after reading it, unless you can part with your own copy.

SS: If you could isolate one facet of cannabis or hemp that has kept you going for so long, what would it be? What has motivated you to speak out so passionately, for so many years, and with such limitless energy?

JH: Think about how you felt the first time you read that book. That enlightenment. Suddenly a whole new world of information is open to you, and you start to think about things differently. Look, 90% of everything, up until only a hundred years ago, was made of hemp. I never knew that; did you know that? Sails, cloth, tents, ropes; we could be making almost everything we need right now out of hemp. Until a hundred years ago, around a third of all our medicines were cannabis-based. Nobody knows this anymore. They didn't even know the medical worth [in America] until around 35 years ago. I discovered this thirty years ago (I was a history major in school) and was amazed. Everything I can wear, and paper, and rigging for ships; and they never lost a child [as a result of the cannabis-containing medications.] We're fighting for this liberty right now in California.

SS: Do you think there will ever be a safe way to make cannabis and hemp available in America?

JH: Thirty years ago, my friend Cap'n Ed Adare and I figured this out while on acid. Hemp can save the

world. Everything will be made better, cheaper, and more. And nobody gets hurt by the poisons, the auto [exhaust].... Almost anything can be made from hemp, and we don't have that far to go. In Canada they have 25,000 acres of hemp stretching from Ontario to B.C. That means they can make 100% of their paper from hemp...

SS: ...Because during hemp processing, you don't have to use chlorine bleach as with wood-pulp paper making.

JH: You've been reading my book!

SS: And even retaining some of it! I have to ask, what is your opinion of the use of helicopter-mounted infrared cameras to catch growers? There's a rumor going around that the Federal courts have decided that it's an invasion of privacy and have supposedly outlawed the practice, but I've heard that it's still thriving as a Drug War tactic.

JH: I had heard about the cameras, but not that it had gone to the Federal level.

SS: We'll have to keep our ears open. There's also the move to Class C in the UK. I believe that the implementation goes into effect in February, and usage restrictions on cannabis will be regarding proximity to children, dealing, etc. Do you think Class C or the tolerant approach of Dutch coffeeshops will ever work in America?



Jack Herer (l) with Sensi Seeds founder and director Ben Dronkers

JH: Again, it's all about information. We need to talk to people. We need to protect our medical patients and producers. Eventually, we'll all have to face the fact that we need to change our behavior, and accept the plant back into the pharmacopoeia. It could solve a lot of our problems.

So there you have it, from the professor himself. Keep your eyes open for the book, and if you hurry, there are beautiful hemp-bound hardcover versions of *The Emperor* available for a short time. If you haven't read anything by Jack Herer, now is a good time to start. He's a fighter, and moved the crowd to tears at the awards presentation at last year's High Times Cup.

To contact Jack or like-minded individuals, or for publication information, check out www.jackherer.com.



By: Weckels, the grow specialist from Atami

Top 44: short bloom and high yield (part 1)



The clones have developed their root system considerably and are beginning to become nice and compact!

The autumn has snuck up on us once again and so the outdoor growing cycle has almost reached an end. Happily, the growing opportunities indoors are also especially good at this time of year, and for that reason this issue's focus is on indoor growing. In this article I will be focussing on Top 44. We raise these ladies in a way that is unique to them, and by doing so can achieve some very fine results. Top 44 is perhaps one of the most grown indoor varieties. This commercial plant is particularly loved for her short bloom and high yield. Although the majority of growers know the plant as a true indoor variety, there are also very good results to be had when growing her outdoors too.

Oxygen pump

In this article I will mainly be dealing with growing Top 44 indoors. We raise Top 44 plants in small pots, placed in trays on top of a layer of perlite. The flower pots look like a kind of sieve, since the whole pot is punctured with little holes. We chose these pots deliberately, because we will be raising our Top 44 ladies on a pretty wet base. The flower pots in which the plants will be raised are continuously standing in a shallow layer of feed water, that is allowed to gather in the growing trays. The chance of an oxygen deficiency for the roots is therefore somewhat



Top 44 produces an endless amount of leaves and by doing so makes the uptake of light much simpler for herself than for the less well-covered varieties. This is partly the reason why Top 44 is also well-suited to growing outdoors, since even though the plant spends a very short period in bloom it can still take up a good amount of light - even once the sun in this country starts to lose intensity towards the end of the year. What is more, Top 44 is relatively untroubled by mould, and this is rarely a problem even when growing outside. In short, it's a variety that can perhaps be very interesting to outdoor growers too!

In each tray we place a bubble stone. With the help of an oxygen pump now there will be a continuous supply of oxygen bubbled into the water.

increased, and that's why we decided to use as well-aerated pots as we could find, so that the permeability of oxygen to the roots is as great as possible. There is an additional trick we can use to optimise the health of the root system (by ensuring sufficient oxygen). With the aid of an oxygen pump we keep the water continuously in motion. In this way, oxygen is constantly being blown into the water, which makes the feed water softly bubble. The roots absolutely

love it! The feed water contains an excess of oxygen which the ladies greedily put to good use. The roots grow like crazy, as do the plants. On top of that, the bubble stones ensure that the feed water is kept continuously in motion, so that the water and the liquid nutrients and stimulators remain well mixed, and so keep themselves in the right concentrations (the nutrients are not allowed to settle out) in the growing trays.

Feeding time

Since the Top 44 plants mature and bloom in a relatively short period, we have been keeping the substrate in which we are growing them very simple. As was mentioned earlier, we are growing the ladies in soil, to which we have added perlite, worm castings and quite a bit of lime. The perlite (in the earth mix) makes sure that the substrate remains sufficiently

Growing in grow trays does have a number of advantages when compared, for example, with growing in simply a layer of soil

Finally, the chances of the feed water becoming soured are also reduced. Nevertheless, we do change the feed water every day, only refilling the trays once the old water had been drained. The thin layer of perlite that is in the grow trays is very important. By spreading the perlite grains we make sure that the pressure from the weight of the plant does not all bear down on the roots.

If the flower pots were allowed to stand directly on the base of the growing trays, then the chance is quite high that the roots would be squashed and/or be badly damaged (by the great weight of the flower pot and the plant). Sprinkling a layer of perlite on the base of the grow trays prevents such problems. In addition, the layer of perlite also means that the roots have more anchoring power, and that they will not become

well aerated.

The flower pots in which the Top 44 plants are being grown are stood in a layer of feed water, and it is important to keep bearing this in mind. The earth mix will be much wetter than normal, and to make sure that there is enough throughput of oxygen in the mix the use of perlite is therefore highly recommended. The worm castings fertiliser can be pretty quickly taken up by the plant and it is therefore a valuable addition during both the growth phase as well as the bloom phase. Since the plants can take up the worm castings nutrients pretty much immediately without much difficulty, and thanks to its ideal composition the worm fertiliser contains a good deal of the necessary nutrients.

The lime, preferably one based on a seaweed extract, creates a neutral pH-value, so that the soil does not become too acidic. What's more, the lime also contributes to the plant being able to take up nutrients and stimulators more easily. In addition to the worm castings and lime, we will be giving the plants throughout the duration of the whole cycle good supplies of liquid fertiliser and stimulators. We do this in order to create even more attractive conditions for our green damsels. A plant like the Top 44 is not afraid of a bit of food, and this is something we as growers can take grateful advantage of!

Clones

But before things have got to this point we first need to make sure that we can get our hands on a good supply of lovely Top 44 clones. In contrast to outdoor growing, when growing marihuana indoors it is far more common to use clones (than seeds). This is especially true when the grower wants to raise a more commercial variety like the Top 44, and getting hold of such clones is usually not a big problem (in Holland at least). The advantage of this is that as a grower you know in advance that you are going to have a good supply of females (something that is not the case when you're growing from normal seeds). What's more, it



This oxygen pump ensures an optimal aeration of the layer of feed water in four grow trays. The roots of the marihuana plants just love it!

exposed. The roots would die off if they were not well covered, and so the layer of perlite prevents this from happening. As the plants become larger, so the bottom of the grow trays will become darker, since the Top 44 plants with their thick leaf coverage shade the base quite a lot. This is all to the good, since the root systems of our ladies are also increasing considerably in size, and this shade protects them from the strong light from the lamps.



An overview of the whole grow space.

often spares us a good deal of time in our grow cycle, since the growing seedlings are magically transformed into clones somewhere else (where the shoots have been treated with clone hormone powder and taken root).

Only once we have got the clones into our grow room can we begin potting them. We fill the flower pots three quarters full with the soil mix, perlite, worm castings and lime. The uppermost part of the flower pot we fill with an un-enriched soil mix (one with no fertiliser added to it). We do this on purpose so that the clones

first let their roots grow and develop, without immediately inundating them with fertiliser. If we just went ahead and gave the roots a rich soil, we would not really be helping the plants along as we would run the risk of burning the roots when they are exposed at a young age to fertilisers.

Once the enriched soil mix has been put in the pot, and the clone-friendly layer on top of that, we can begin with our potting. In each flower pot we make a small hollow in the soil so that we can easily place the clone in it. I often make the hollows with my hand,

although there are also special hole makers available for this. A hole maker has the advantage that you can be sure that every hole you make is always the right size for popping a clone in to. Often the whole potting process can be done a bit quicker when we use such a hole making device.

Once all the clones have been placed in their flower pots we can fill the grow trays they will stand in with a thin layer of perlite. Then we can fill the grow trays with a layer of water, with some root stimulator mixed in with it. The liquid fertilisers we leave to one side for the first few days to avoid the risk of burning the young roots.

Once the grow trays are filled with the water and perlite, we give the perlite granules some time to take up some of the water. Sometimes it can be a good idea to churn the granules up a bit, to make sure that all of it is good and soaked through with the water. In this way they take up sufficient moisture and we can place the youngest clones in their flower pots into the grow trays.

Even though the clones have yet to fully develop their roots and so can not yet take up water directly from the layer of water at the bottom of the grow trays, this water layer does have another, favourable effect. Thanks to the temperature in the grow space (somewhere around 26°C) this water evaporates, which keeps the air moisture content elevated. This has a particularly beneficial effect on the development of the clones.

Another trick to make the clones feel at their most happy is to hang your lamps for the first few days as high as possible. By doing this the clones with transpire as little water as possible, so that the chances of them drying out is minimal. The air moisture level between the plants will also increase by doing this, since the higher-hanging lamps will be less able to evaporate the moisture between the clones.

Light cycle

Within a few days the clones will be really going for it. Not much later the clones will have grown into fully-fledged bushes. For the first week we let the lamps burn for 18 hour days. There are growers who choose to run a 24 hour cycle in the first few days, meaning the lamps are pumping out light non-stop, something which will in all probability cause the clones to develop more quickly. But there are also growers who claim that every plant also needs her (we growers raise female plants after all) moments of rest for carrying out yet other chemical processes (than with light), and these moments are crucial to the life cycle of the marihuana plant. So it is their opinion that a light cycle of 24 hours is a little bit too much of a good thing. There is something to be said for both methods. Since we as growers are our own bosses, the best option is to find out which option you prefer yourself.



Top 44 is a short bloomer and often a good yielder, twin traits that make it a well-loved variety by the commercial grower.



We support the plants with bamboo sticks. By doing so, at a later stage in their development they will be able to support more weight of flower heads so that the buds can get nice and close to the lamps (and not just bloom hanging downwards).

After we have given the plants a week of 18-hour days of light, the ladies will have reached a good size and the leaves will have a healthy, dark green colour. In doing so, a plant like Top 44 will produce a huge amount of leaves, thanks to which within the shortest of time you will have developed a whole field of plants and your grow space will be transformed into a single mass of green! Sadly this over-abundance of leaves also means that the lowest side branches sometimes find it somewhat difficult to receive their light. For this reason we don't let the ladies get too big. Our grow space is located in an attic, and so we are a little restricted regarding space by the limited height. We have to make sure that the lamps



Top 44 plants can produce a considerable amount of leafage. The grow trays can become totally swamped under the thick leaf cover.



The advantage of growing with clones is that the plants often grow in height with nice regularity.



Often we choose to try several growing methods (like growing in a bucket full of hydro-granules as well as growing in trays) and compare the results!

can continue to be hung at a reasonable height. So it is all-in-all better to grow indoors with smaller, more compact plants, ones preferably with a sturdy main stem and strong side branches. I myself have always been a supporter of giving marihuana plants the room (especially as regards width) they need. That is to say that I have a problem with growing too many plants in too small a space. Too often growers think that the number of plants is the decisive factor in a large harvest. If there are too many plants for the space though this can work against the eventual harvest. The plants suppress and compete with each other for the available nutrients and light, and are essentially just in each other's way. The result is often a small field of under-developed plants and much less successful harvest.

What that also means for us as growers in trays is that we have the great advantage that we can still move the plants around during their growth phase. In this way, we can move the plants out of each other's way if we need to. If you do this, make sure you take great care, because usually the plants let their roots grow in all directions and these roots can get wound up around all kinds of things.

To try and move the plant now without taking great care is just asking for problems. The roots run a large risk of being damaged and/or even being completely broken off. The result is one very stressed plant, who is not exactly happy about having been moved and will probably show retarded growth for the rest of the cycle. So always being ultra-cautious in attempting such interventions.

Grow trays

Nevertheless, growing in grow trays does have a number of advantages when compared, for example, with growing in simply a layer of soil. For one, the problem of giving too much or too little water (whether by hand or with an automatic irrigation system) is scarcely a factor. There is always a layer of feed water in the grow trays, so that the chances of the system drying out becomes pretty negligible. On top of this is the fact that schlepping large volumes of soil around is no longer necessary, since proportionately we use



This flower head has been blooming for four weeks.

very little soil. This is smart growing, given that humping heavy sacks of earth up flights of stairs to your grow room is guaranteed to give you a whole bunch of frustration. The savings also work in the opposite direction too: you will not need to haul the depleted soil back down and dispose of it conspicuously in your garden during the winter months. It is often little tasks like these that can lead to a grower getting caught by our courageous forces of justice and order in blue.

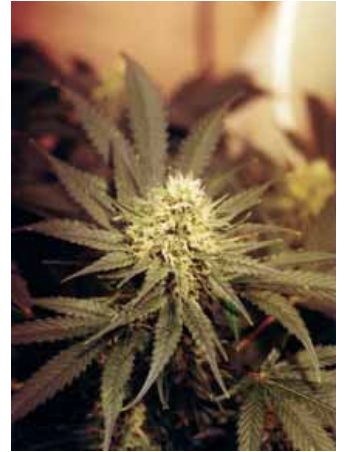
To return again to this insignificant amount of soil issue. The usage of soil with this method of growing is so miniscule because the layer of water in the bottom of our grow trays keeps the soil mixture in the flower pots continuously moist, thanks to which the weight of the flower pots with their soil is reduced considerably. This also has the great advantage that the underside of Top 44 plants have a kind of natural ballast so the chance of them toppling over is zero.

If we were to try and raise the plants to maturity only in flower pots (without grow trays and a layer of water), things would be quite different, with persistently falling over plants being the result. A possible solution to this might have been growing in larger pots, but of course logically that would mean a proportionate increase in the volume of soil that would be needed. But the large pots would have damp soil in them so the object of keeping the Top

44 plants upright would be achieved. You would also have to make sure you did not let the plants grow too large. This is easily achieved by cutting back the number of hours' light a day the plants receive to 12, which will prompt the plants to start pumping out bloom hormones and slam the breaks on the explosive growth. Make sure that you take account of the fact that marihuana plants still manage to increase in size / height quite a bit even now. That is why it is perhaps better to set the ladies into bloom a little earlier, before they have reached their ideal height. If you don't do this, then the chances are high



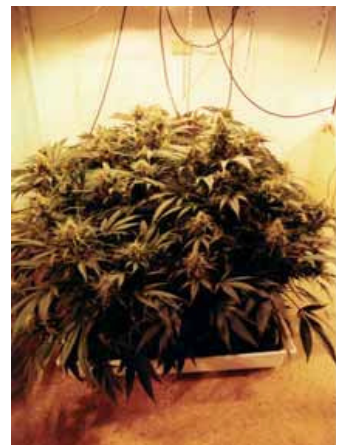
Once more, a look at the grow space. The Top 44 plants are now beginning to produce lovely, compact flower heads.



What a picture!

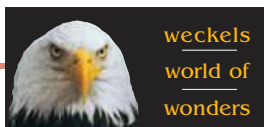
that within no time they will be almost scraping their heads against the ceiling. And then your chances of a good harvest start falling apart, since there is no longer the space in which to hang your lamps!

My Top 44 plants continue to develop nicely, and as a grower I will always do my very best to create the conditions in which they can thrive. In the next issue I will be concentrating on the end phase of the grow cycle of this variety. Here's hoping already that there'll be a good supply of flower heads to report on!



The ladies have things exactly to their wishes!





By Weckels, the grow specialist from Atami

Top 44: after six weeks, the harvest (part 2)

The flower heads keep getting bigger and bigger in size



Top 44 plants often have in the beginning a flower head with many white THC threads. The bud itself is often a bit ball-shaped and round in dimensions.

In the first part of this feature on Top 44 we saw how we could get the young clones to take root and how we partly brought them to maturity. I also explained which growing method we used for this and what advantages these grow tactics brought with them. In this article we will be able to see how the Top 44 ladies have further developed and what setbacks they are liable to have demonstrated. At the same time it forms the last part of the series about Top 44, given that these short blooming plants will be harvested when this issue comes out. After all, a Top 44 plant blooms, as her name suggests, after just 44 days (about six weeks) and so by the time this is up, the ladies will be positively exploding to go under the scissors.



The plants grow as compact bushes. This is just how we want to keep them, so we do not let them get too tall.

The biggest problem we face when growing Top 44 indoors is that this variety gives off an amazing amount of moisture thanks to her large leaves and thick leaf coverage. Top 44 has brought many a humidity meter metaphorically to its knees. During the growth period they find this rather agreeable (provided that it doesn't get too swampy from the high air moisture content). The young clones grow like mad and develop far better when they are started out in an environment that has a high air humidity. This is because the ladies have to evaporate less moisture through their leaves (given that the air moisture level is already pretty high), thanks to which they can use the energy they save for growing.

Air de-humidifier

Later, during the blooming phase the (high) air humidity will really play a critical role and we need to do everything in our power to keep it down as low as possible. Make sure in any case that there is sufficient air ventilation and remove the largest leaves from the plants. This often has a substantial impact. I am also a supporter of using in addition to the above mentioned methods an air de-humidifier. This piece of equipment is well worth the money it would set you back at twice the price, and they have spared many a harvest from a good deal of trouble.

Even though Top 44 is generally not particularly susceptible to fungal infection, the use of a de-humidifier such as a Carrier is still advisable. You will be astonished at just how much moisture

this piece of kit will filter out of your grow space. The collection tub will be filled to the brim twice a day with water. What many growers do not know is that this water has an EC of zero, also known as osmotic water. This water is ideal for bringing the EC of the feed water down, in cases where this is too high or when we want to add more nutrients to the water (doing which would elevate the EC).

The Top 44 plants that we have raised were provided with feed water with an EC of about 1.3. The ladies grew outstandingly well on it.

Regular mains water always has an EC value, one that varies – in the Netherlands at least – between 0.3 and 0.7 depending on where the grow room is situated in the country. So the mains water in North Holland has an EC of 0.6 while in South Holland, the EC is just 0.4. The province of Zeeland has an EC of 0.3 – by far the lowest value. Limburg, down near the Belgian border, has a most useful EC value of 0.4. On the Internet there is a load of information to be found about the EC values of mains water supplies, and so for every grower there are useful tips to be had that are specific to the region in which they are growing. That goes for growers in many other countries too, and I advise all of you to do a check for your own situation. Having said that, it is probably the most easy thing to just check your own mains supply with the aid of an EC meter. Then at least you can be absolutely certain what numbers you are dealing with.

Differences

To come back briefly to the differences in EC value of mains water in the Netherlands. In general you can say that the growers in areas with low EC mains water have something of an advantage over the growers who are operating in areas where the EC is somewhat higher. Put briefly, it is the case that the lower the EC value the more liquid nutrients we can add to our (mains) feed water without raising the EC value too high.

The Top 44 plants that we have raised were provided with feed water with an EC of about 1.3. The ladies grew outstandingly well on it. There are also growers who strive to keep the EC around the 1.1 point, but with a not so sensitive variety like Top 44 that is not really necessary. Even with an EC of 1.6 or 1.7, Top 44 can deliver good results. Even so, it is important that when you are growing you also measure the EC value of the water that runs out of the pots. Of course, when you are growing in a water medium (as we are in this article) this is not applicable, since the plants are stood in it continuously. After all, the feed water is tipped directly into the growing tubs.

Superior solution for growth & bloom!

Welcome

Hesi.nl



**CUP
WINNER**



PERFECT FOR OUTDOOR

see Hesi article on
www.growinfo.com

Visit our web site
www.hesi.nl
and click here



for the current
distribution list
and
sales points.



Hesi plantenvoeding Voltastr 19 6372 CK Landgraaf tel 045 5690420 fax 045 5690421 e-mail: hesi@home.nl



This lady will need another 8 days or so to finish blooming. With the aid of a wire suspended from above we can support the crown bud.

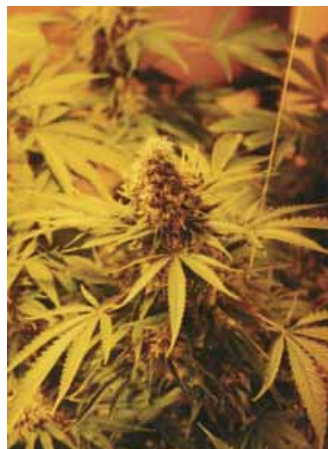
When growing on soil this does play an important role. Here we need to measure the EC value of the feed water and after we have finished watering, also test the levels in the water flowing out. A simple calculation will show you approximately how much EC the soil comes to. In this way you can easily tell whether the soil does in fact have enough nutrients in it or not. Should the overflow water have too high an EC value (for example higher than 1.7), then it is a good idea to reduce the amount of nutrients you are putting in the mains water, so that the EC value falls again, and doing so will eventually cleanse your soil. We can notice this ourselves after a bit of time, by measuring the EC value of the overflow water once again. Of course, there are many other factors that are important in the successful growing of marihuana than just the EC value. But nevertheless it is the little things like this that when you pay attention to them end up making all the difference!

Osmotic water

But there are a few tricks that growers living in a region with high EC value mains water can use to easily lower that value. As was mentioned a little earlier we can do this by using the osmotic water from the de-humidifier, and just adding it to the mains water mix we have in the feed water vat or water reservoir. Naturally it is the case that the smaller the feed water vat or the less water there is in it, so the greater the effect will be when you add the osmotic water. You can imagine that when we pour the osmotic water into a watering can for example in, we get the EC down much lower relatively, thanks to the proportion of the normal mains water to the osmotic water being closer to the desired level. Emptying a can of osmotic water into a large feed water tub that's sitting filled near to the brim with mains water will (logically) have a much smaller effect. But every bit helps and certainly when this trick might just help produce a better end harvest, it is more than worth the effort trying!

Less sensitive

Luckily it is true that a plant like Top 44 is much less sensitive to a somewhat higher EC value than, say, an EC-sensitive variety like Cytral. Even so, as growers we do need to keep things a little bit in hand. Since we are mostly growing in water, we do not have the benefit of having a buffer,



The whole grow space is bursting with buds!

as soil is when we grow on it. Earth mixes work as a kind of sieve, thanks to which the roots of the plant usually never have to deal with a too high dose of nutrients (and so high EC value of the feed water) all at once. On the other hand, the drawback of soil is that when you give too much nutrient via the feed water over a long period of time and then pour this over the earth mix, nutrient salts accumulate in the soil, which can soon give you a mix that can be pretty toxic to your plants.

Even when you manage to stick to giving nice, measured doses this can still occur. You can prevent this from happening by regularly checking the EC value of the overflow water (the water that flows out of the substrate after watering). In this way we can catch the problem in good time. When you do not keep a close eye on the EC values and allow the soil to accumulate too high a concentration of nutrient salts, then it is usually too late to save your plants. In vain the unlucky grower tries to cleanse his soil mix as much as possible, by pouring clean mains water over the thin layer of soil like one possessed. A single time this might work, although the plants will receive a tremendous set back, which will be reflected in your eventual yields.

Another problem that thorough rinsing of the soil mix can lead to is that the soil becomes so wet that it transforms into mud, which will pretty much suffocate your plants roots (they can no longer get enough oxygen). The roots die as a consequence and often start to rot in the wet subsoil.

The roots that are still healthy will be badly affected by this, to the extent that any thoughts of a successful harvest go out of the window. It also needs to be mentioned here that the stage at which this tragedy takes place has consequences for the steps

course, growing in trays has a drawback too. For example, you can imagine how quickly a root disease can spread in water. Should this trouble raise its ugly head, there is really very little to be done to stop it affecting the root systems of the other

Luckily it is true that a plant like Top 44 is much less sensitive to a somewhat higher EC value than, say, an EC-sensitive variety like Cytral.

we should take. Should the poisoning occur within the first few weeks of growth it is probably worth your while to bite the bullet and start the grow all over again, with new clones in a new soil mix and learning from the experience where you went wrong. Sometimes this is better than struggling on and trying to make the best of the situation. Whenever you get problems at an early

plants (in the same grow tub) becoming infected in the shortest of times. To minimise such risks, we raise the plants in tubs that do not come into contact with each other. In this way, should any sickness arise in the root system it's true that the plants in the same grow tub will probably be wiped out, but the other plants that are in the other grow tub are not put at risk.



The Top 44 plants in the grow bucket with hydro granules are also doing extremely well!



A plant such as the Top 44 is well known for her good yields!

stage of growing marihuana, even if the problems caused do not seem too huge, they will have a negative effect for the rest of the growing period.

Various grow trays

The above mentioned problems are rarely encountered when growing on water. We measure the EC of the feed water that is in the growing trays on a daily basis, thanks to which we can quickly take steps when something goes wrong. Taking such steps is pretty easy when you're growing in a thin layer of water in trays. We just let the water flow away if we find that the EC value of the water is too high. But of

Should one particular plant during the grow cycle appear to be growing worse and/or look unhealthy, then we are better off simply removing it. In every grow there will be a number of troublesome growers or sick individuals among your plants, and these often only cause frustration and/or lead to unnecessary problems. What is more, poorly-developed plants rarely deliver any decent amount of buds, and so again, we are better off just removing them or replacing them with a good growing plant of the same or similar variety. A poorly-growing plant will pretty soon be overwhelmed by its more vigorous neighbours and will eventually die from this competition anyway, often before it has even had the chance to come into bloom. What is more, a dead plant will soon attract a veritable plague of moulds and/or other pests, and before we even know it they are the catalysts for a failed crop.

The removal of sick and/or poor-growing individual plants is accomplished with ease in our growing system, given that we are only growing on a layer of water. We just yank the pot with the sick plant out from among the others. Be careful when doing this to do it with care, so that the other roots are damaged as little as possible. As for what happens to the newly exposed space in the grow tub, don't worry about this. When we rearrange the other healthy plants, the green ladies will only thank you; in no time at all they will be making grateful use of the extra elbow room!

Lamps

During this grow cycle we have been mainly using 400 Watt lamps. These lamps give enough light to bring the Top 44 plants to full size and then bloom nicely. Although 600 Watt lamps are in my opinion better at producing the right amount of light in comparison with the amount of energy they use, we have chosen this time to use 400-watt. In itself this is not such a crazy idea, since in the grow space we are using there is a limited in the amount of electricity we can supply. The power groups in the house also have their limits after all and as growers we need to take such considerations into account. It is not possible in all locations to increase the amount of energy deliverable by huge amounts, without spending a great deal of effort

plants a little extra attention (in the form of light), so that the ladies will be put back on track with their sisters as quickly as possible. So it's best to hang the 250 Watt lamps continuously in one spot or another.

Flower heads

Once we have done our best for it, it really cannot turn out any other way with a plant like Top 44 other than that we will be richly rewarded. That is what a commercial plant like the Top 44 is well known for after all. The flower heads of Top 44 begin quite innocently to bloom and just get bigger and bigger. The bud produces many white THC threads and often has a somewhat round, ball-shaped form. As for appearance, the flower heads do look good, even if they are not

the business regarding the high. What's more, the weed is reliably a good, nice tasting, mid-range performer. What's not to like? One further plus point is that Top 44 is often considerably cheaper than the long-blooming marihuana varieties, and that makes up for a lot!

I hope you have got an idea from this two-part article about the possibilities of this growing method and the successes that can be achieved with it. Although this time around I have been using a short-blooming variety, it is a growing method that is very well suited to growing the longer-blooming varieties too. Exactly because the often white varieties (that also frequently are longer blooming) are more sensitive to a high dose of nutrients, this method of growing offers results. Many growers

who raise the long-blooming varieties on soil find that even though there did not appear to be anything amiss in the first eight weeks, after this, by the last two weeks of the blooming period, something seems to go wrong. The soil has been all this time given feed water with a liquid nutrient mixed in to it, and with the passage of time it appears that the soil has accumulated dangerous levels of nutrient salts. The damage is by then already done and what are perhaps the most important two weeks of the whole growing cycle are lost. Precisely to avoid such tragedies, growing on a thin layer of feed water can give you some great surprises!

The following issue I will be taking a look at how we make Space Cake, so you better stay tuned!



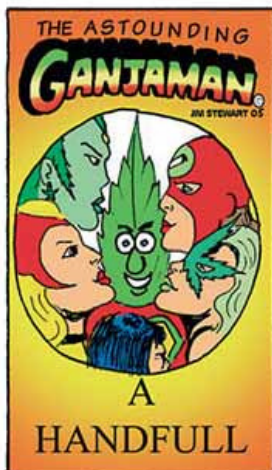
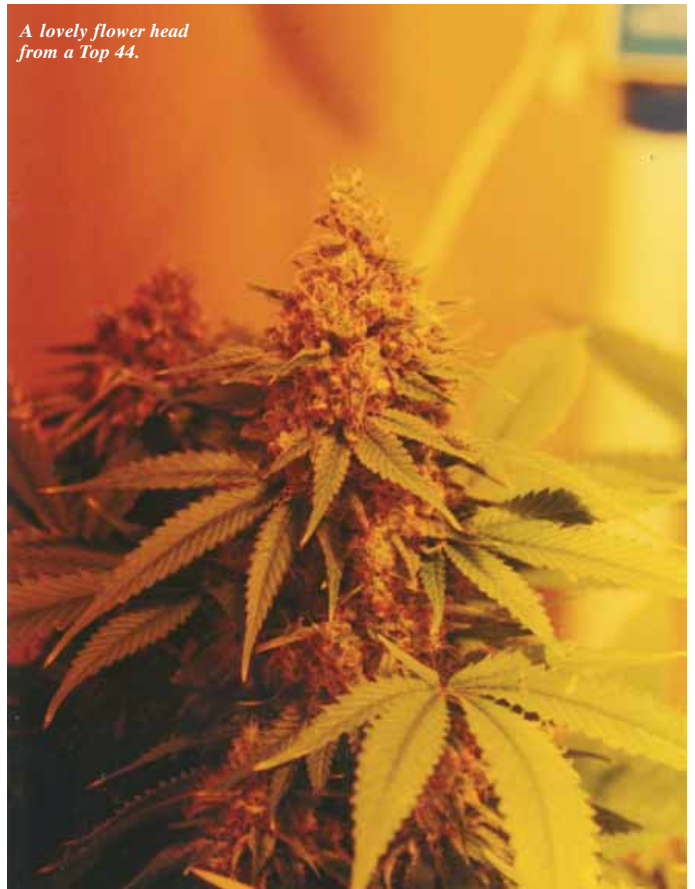
The majority of the flower heads become reddish coloured, signalling the end of the blooming phase.

and expense beforehand. What's more, there is another aspect to bear in mind. We are deliberately keeping the Top 44 plants a little bit smaller in dimension, and in that case the 400 Watt lamps can give us more than enough light.

Sometimes in situations like this it can be better to spread the availability of light over a number of lamps. In addition to the 400 Watt lamps, we also use another two 250 Watt lamps. We hang these mostly in the corners of the grow room or in those spots where the ladies are falling behind a bit in their growth. In this way we can give a couple of underperforming individual

something that will keep the lover of exclusive varieties lying awake at night. Thanks to its short bloom period you can also not expect from a variety like Top 44 bone-white buds or particularly unusual looking flower heads. Given that the average Dutch smoker is increasingly on the lookout for new discoveries of good looking weed, and thanks to that is prepared to spend a little bit more for an exclusive variety with a good taste, the production of the majority of commercial varieties such as Top 44 has shifted abroad. Even so, Top 44 is still smoked regularly in the Netherlands. And credit where it's due; a good blooming Top 44 will always do

A lovely flower head from a Top 44.



Growing in water

Because we have been talking in recent issues of Soft Secrets about some fine combinations for indoor growing, we are going to take it a little further this time around. But I won't be letting you go all winter without a nice growing story. So this article will be about what for most growers is still a new form of growing, namely growing on (only) water (with an elevated oxygen content) and liquid nutrients.

The era of time after time hauling heavy sacks of soil and nutrients, replacing them each time, and getting rid of the old soil and endlessly mixing perlite and earth, to get the base nice and airy, may safely be declared over. Though this new form of growing does have a bit of development to undergo before it could be called a real trend. Bear in mind that no grower is as suspicious as the weed grower, if only because of the fact that there are large amounts of money to be made or lost. It may be that the battle-hardened hydro grower is in a better situation to make the leap and may be the most easily interested.

The biggest advantage of this growing method is that you not longer have to be a kind of pack mule running stuff in and out of your grow space, thanks to the fact that you just fill the special cylinder-shaped grow tubs with water, rather than soil. And that means that not only do you save a lot of time; for the grower with the ever-present and nosey neighbours, it means they can finally stop all this carting of sacks of soil back and forth through the winter months, an activity that is a sure sign of a large scale hemp set up.

But even for growers with the friendliest of neighbours, growing on water has another advantage over growing in soil. Growers are often bitching about the soil in which they are growing is not of pure enough quality, about the amount they have to pay for decent quality soil, the cost of the perlite and the additives they sometimes use. You also hear frequent complaints about soil out of exactly the same brand of bags having different nutrient values and thus different pH values from bag to bag. Fortunately I have never been afflicted with the last problem, but I personally nearly always choose to use the somewhat more expensive brands, and with these too the rule is: "he who checks the pH value of the soil every time, also before you stick your plants or clones in, will not get any unexpected surprises."

Should you, after having been to work with your pH meter (NB: leave the meter in the soil for at least two minutes), are still discovering variations in your pH values in the soil, then there is always a way of getting the value down (a problem pH value is nearly always too high, i.e. higher than 7.5, and very rarely too low – lower than 5.8). One method I use myself a lot for lowering the pH value of the nutrient base and giving the base a pretty neutral pH value (around 7), is by using chalk.

To come back to the advantages of growing in water, besides the above-mentioned problem of varying pH values

in different sacks of soil, is that pests and insects among your plants become a problem much more slowly, because in the previous situation (growing on soil) they still manage to get into your grow space in the form of eggs and larvae hidden in your soil. The result is that you can end up with a veritable rain forest of creeping, nibbling beasts that you have to go to great lengths to remove from among your plants. But because now with our mains water we are guaranteed that we will have no uninvited guests, your grow space in the future will, provided that you bring 'clean' clones into the environment, will stand a good chance of remaining an insect-free zone.

The new growing system actually works pretty simply; the cylindrical grow tubs are filled with water, the clones are placed in small, granule-filled flower pots and then these pots are hung or placed in the lid of the grow tubs. The flower pots in which the clones grow are filled with hydro-granules because were you put soil in them, the whole nutrient cylinder would become filled with muddy water. The roots (in the flower pots) would then be exposed and would die as a result, as roots cannot light on them.

The plants receive liquid nutrient 12 times a day during the whole growth and bloom cycle, the great advantage of doing which is that the plants can take up the liquid fertiliser mixed in with water only even faster. Soil has the property of 'sieving' the added feed water, so that the plant does not get all, or gets a less strong concentration of nutrients than desired. The problem of over-feeding will occur sooner when growing in soil than when growing in water. As you can well imagine, when more and more small concentrations of nutrients are left behind in the soil (the feed base), after a few waters / irrigations a lethal concentration of salts can accumulate in it. That is why most growers nearly always replace their soil after it has been grown in just once, as the soil contains too high concentrations of nutrient salts, to the point where it is unusable. Mixing one part old soil with two parts of fresh is also a good option, though a small risk of over-fertilisation always remains.

The number of times that you give nutrient to your plants ultimately determines the total number of weeks (or months) that you can use the soil. By this I mean to say that with varieties that are ready to harvest in seven or eight weeks, you generally don't have any problem with the soil getting ever more toxic throughout the grow cycle. But you would not be the first grower raising a long-blooming variety (in the hope of getting a good price for it) to have no



The cylindrical grow tubs are ideal for a good root system to develop in, mainly because ever more oxygen can be pumped through the water in the tubs.



Especially the varieties that usually become large, tall plants are good for growing in this new form (in water) of growing.

Not A Leg To Stand On

By Joe Kane

Readers, I have been so fucking ill these past weeks, I was starting to think I had the fucking Bird Flu. Lying in bed hallucinating all day! I know some people would pay good money for that, but trust me you really, REALLY don't want to get this nasty little fucker. Oh, woe is me!

Well, the result of my indisposition means that the column this time would be a pretty fucking sparse affair. I can't think straight for too long even now, so I'm gonna take the time to tell you a pretty funny story that someone told me when I was on my death bed a couple of days ago.

Okay. There's this bloke called Spanish Gerry who is one of those aging stoners you find in every city in the world. He must be knocking on for 60 if he's a day, and he's the kind of guy who can relate stories about how groovy dope and acid were in the 1960's for hours and hours ("Yeah, man. So there I am on the bus with Leary and he's hogging the fucking joint" etc). And they're very funny the first couple of times you hear them but then they start to wear a bit.

Anyhow, at some time back in the 1970's Gerry was in some kind of accident, possibly involving a car, or a motorcycle or maybe a piece of heavy machinery. The specifics aren't really very specific. But as a result, he's had one of his legs amputated at the knee. Sometimes he wears an artificial limb ("Did I ever tell you about the time I smuggled a load of Temple Balls back through customs inside my fucking leg?" etc) and sometimes he doesn't bother.

All of this incidental detail is important for reasons that'll become clear in a minute.

So a week or two back Gerry has invited himself round to the abode of several people of my acquaintance and is guzzling their Tequila and smoking their dope like it's going to be banned or something. Ever notice how so many of these

self-appointed "elder statesmen" of the dope scene never actually seem to have any of their own? Such was the case here, and so old Gerry is getting totally fucked on some pretty mighty home grown.

One of the residents of the house, Little Jim, is not only a gardener extraordinaire, but he also keeps two white rats and a ferret called Fifi. The love of vermin on Little Jim's part goes hand-in-hand with some good sense as the smell of the animals does have a toning down effect on the smell of the grass.

Little Jim and company are politely listening to the same stories for the zillionth time and trying not to scream. After what seems like days of the boring old fart droning on, he decides that he's too fucked to go home so takes off the leg and promptly passes out on the sofa. Everyone else thinks "Thank fuck" and retire.

In the middle of the night they're woken by a wail followed by banging and then a loud crash. Little Jim's first thought is that the house is being busted and everyone runs through to see what's going down. Spanish Gerry's what's gone down. Little Jim had been so stoned when he went to bed that he forgot to lock Fifi the ferret's cage up.

So Fifi had got out and eventually had bolted up Gerry's (empty) trouser leg and sunk her teeth into his stump. The pain of course had woken Gerry up but rather than think "there's a fucking ferret up my trouser leg", the stoned twat got the idea that his leg had grown back and had tried to stand up. He fell right on his face knocking out four of his front teeth in the process.

Well it made me laugh, readers. And now I'm going back to bed to wait for the painkillers to kick in.

See ya.

JK
horribly_stoned_boy@hotmail.com

trouble at all for the first seven weeks only to discover increasing numbers of yellow leaves among your plants in the eighth week and just one week later see your whole harvest lost. The plants have obviously fallen victim in the last two or three weeks to the ever-increasing levels of salts that have been accumulating throughout the growth and bloom cycle.

Problems like this hardly come into play at all when you're growing in water, because a couple of times a day all the water (with the products of the remaining nutrients in it) in each of the cylinder-shaped tubs is completely refreshed. In doing so, all the nutrient that has not been taken up by the plants never has the chance to build up to what would be a poisonous level for the plants.

Because a good feed base must have a high level of oxygenation, we pump air through the water in the grow tubs with great regularity. By doing so we raise the oxygen levels in the water considerably, and this is much to the advancement of the root development and so to the eventual growth of the plant. I personally am convinced that with no other grow technique can you supply your growing roots with such a high concentration of oxygen. If you have ever been plagued with the problem that the roots of your plants kept suffocating because the earth was not well enough aerated (thanks to which too little oxygen gets to the roots), with this growing method irritation will be banished for good.

Thanks to the high oxygen content and our ability to maintain an ideal concentration of nutrients (there will no longer be any residue left over either) the plants we are growing were sufficiently well develop to put into bloom after just five days of pre-growth.

Of course, attached to any new form of growing there will also be some drawbacks (most of the advantages have already been mentioned). Should a sickness break out in the roots (such as root rot), then the chance is pretty high that the infected plant will also infect others. The roots grow like crazy in and out of each other and you will soon see that sicknesses will pass very easily among them. Fortunately there are more and more products coming out that can help prevent such diseases in the first place, and as growers we have the greatest confidence in them.

On top of that it is also the case that the plant do need to have a very close eye kept on them, with special care made to make sure that there is always sufficient water in the grow tubs, take note the lazy growers among us. When growing in soil the odd day here and there when they get no water is not so serious, as the soil always holds some amount of moisture in it and so your plants will not die immediately. This is not the case when growing in water; no water in the grow tubs almost always means the end of your plantation. The plants dry out with this grow method (if they do not get enough water) quite a bit quicker (the roots after all have no soil around them where 'emergency back-up' moisture can be wrung from) and so you have to make sure the grow tubs are filled every day.

When growing in water you also have to keep a close watch for leaks. A lot of grow rooms are still discovered because the downstairs neighbours end up drenched in water. So be forewarned and build a with strong pool liner plastic a sort of artificial lake around and under the grow set up. This is actually something every grower should do, whether or not they are growing on

water, rock wool or soil, before they rig up the grow space. But especially when you grow in water then building a pool is an absolute must-do. Now should a leak spring in any part of your set up or any grow tub, then the spillage will remain in our pool and not drown the downstairs neighbour and get you busted. It's a definite case of where a bit of extra work can potentially save you a whole heap of pain.

To finish, it still remains to be said that this method of growing is suitable for all varieties and hybrids. Even for the long-blooming varieties, as was explained earlier in this article, this is a very suitable grow method. Neither does the size of the plants play a role, precisely because the tubs in which the plants are grown are filled with enough water to be

quite heavy, which in turn makes them hard to tip over – provided you continue to keep enough water in them!

One more side advantage is that should you get any sick or poorly growing plants, they are easy to remove and a new, healthy plant put in its place. If you're growing in soil or rock wool and you want to remove a plant, this is very hard to do without causing severe damage to the roots of the other plants, so replacing under-performers is really out of the question.

So that's the end of this article; I hope you've found this an amusing grow story to lighten up the winter days with and that you will not underestimate the advantages of growing in water in the future!



With this special pump you can keep pumping oxygen into the grow tubs, the water is refreshed a couple of times per day and 12 times a day liquid nutrient is added to the water.

By Weckels

Professional systems for growing in water

We have recently been looking at growing in water (with added liquid fertiliser). The major advantages with this still relatively new grow method has intrigued many a grower enough to prompt them to extract more information from us, and it was not long before we were really inundated with mails and phone calls from enthusiastic growers.



These are the two proud designers of a new grow system (on water). Note particularly the gigantic dimensions of the plant in comparison with the grow tub.

Sadly it is often impossible for us to answer every single email and phone call, but that takes nothing away from our commitment to keep all growers in the UK, Holland and other countries

By it being allowed to stand still the concentration of oxygen in the feed water drops drastically

continually up to date with the latest developments. Any new developments take some time to get one's head around and it has taken a while before we could confidently say that we had fully got to grips with professional water systems. The process has been a little like looking for a needle in a haystack because the grow systems that had already existed were (partly thanks to their dimensions) far from being suitable for growing marihuana in.

Water and power

Of course there are still plenty of growers who know how to cobble together a complete water system themselves, but this is often not without risks. In addition to the previously mentioned critical issues such as potential water leakages, when you are attempting such a (water) system

on your own you also need to be extremely careful, mainly because you are also having to deal with considerable amounts of electrical current in order to get everything suited to raising your

plants successfully. Given that water is extremely good at conducting electrical current, it goes without saying that boshing together a water system yourself can be a task fraught with dangers. Fortunately there are still plenty of companies that do nothing else than develop growing systems for among others the 'straight' horticulture industry. And that marihuana plants also do very well growing in systems developed for (for example) tomato plants is a fact.

The systems that will come under consideration in this article are grow systems used by professional market gardeners and that makes the chances of successful re-use by marihuana growers even greater. Sadly for this article we have no lovely photos of marvellous marihuana plants for illustration, so you will just have to take it on trust that they are also well suited for growing on these new grow systems.

Mother plant

To begin with, we'll have a look at the sizes of these new systems for growing in water that are available. The smallest system has a length of 40 cm and a width of 30 cm and is therefore the best to use for just one single plant. Many growers will be asking themselves straight away whether it is in fact possible to grow plants of any decent size in such a small container. The answer to this is that you will be amazed at what gigantic (marihuana) bushes you can raise in such containers. Thanks to the fact that they are constantly filled with water (with liquid fertiliser dissolved in it) they have considerable weight and so the plant can reach a good height without threatening to topple the whole system over. Such a container therefore is ideal for keeping a large mother plant alive in, for example, without you having to do very much.

It so happens that this is possible thanks to the plant being continually provided with feed water and it being not necessary to provide water from a watering can. As a result problems such as too wet an undersoil no longer raise their ugly heads, because the feed water is in constant motion. Root rot and other forms of rot occur almost exclusively in grow systems in which the water is allowed to stand still too often. By it being allowed to stand

much hassle you can save yourself if you did not have to bugger around with all those cables and sockets and lengths of flexible hosepipng for the irrigation system – over which you would not be the first grower to go head over heels for the umpteenth time in their grow space. Of course, most growers are very careful when they making their way through their painstakingly set up grow space, but the smallest accidents often have the greatest consequences. It happens all too frequently that plants and the tubs they are in are brought crashing off the grow table (because you've stumbled across one of the flexes), to say nothing about those poor unfortunates who stumble against their feed water vat accidentally, knock it over creating a tidal wave of water as the result.

Root attachment

It is often the case that it is when the plants (and so your grow room too) are not illuminated by the lamps that are the times when you want to go moving your plants (for example) around. As a grower you do these activities almost always in the periods of dark (when the lamps are not on) so that the buds do not get burned against the lamps while they are being shifted about. With just a torch for illumination you can not see so well and accidents can and regularly do happen.

Hydro granules often have accumulated considerable concentrations of salts

still the concentration of oxygen in the feed water drops drastically, and that is exactly when moulds and varieties of rot can set in. But because the feed water in this new grow system is constantly in motion, it is almost impossible for these moulds and rots to gain any foothold.

An additional advantage is that the small pump that keeps the feed water in motion only uses a very small quantity of electrical current, to the extent that in the future it is not hard to imagine that such a grow system could be run entirely off a battery. Just imagine how

To come back briefly to the issue of tub size: the biggest that is currently available has a length of two meters and a width of one meter. This is a great size for the grower with a somewhat larger grow space and offers a huge variety of options. There is also quite a bit of variation between the systems, so the plants in one system for example literally hang in the feed water, while in another system it's as if they are on a floor, situated high up in the growing tub. On this floor or platform there is a biodegradable mat that serves as something for the roots to anchor on, which gives the plant



In this photo you can clearly see how the roots anchor themselves to the root mat. In this way the plants are not left to just drift in the grow tub.

Finnegan's Wake

By Joe Kane

Well readers, I was at a funeral in Edinburgh recently, so freezing cold and pissing rain. What a fucking barrel of laughs that was. The deceased was a guy called Dobbo Finnegan, and I got to tell you that I never really like the guy, but we were kind of in the same line of business so I go along to basically rubberneck and to see who else turns up.

A bit of background; this Dobbo, he's in his mid-thirties, and he's a total fucking speed and pill monster. He's getting out of the bath when he either slips or has a heart attack and falls... whatever, the result's the same. He hits the side of his head off the crapper and it's goodnight Vienna. Live fast, die young, but spending your last seconds of life lying on a bog floor thinking "Fuck, I'm going to die and my bare arse is sticking up in the air" is hardly James Dean, is it?

So the day arrives and there's a fair crowd congregating at the church. It's weird cos there are a number of women there bawling their eyes out even though it's an unspoken thing that Dobbo was a bit of a pest and that he probably never got laid in his entire life.

Other than this, it's like a fucking dealer's convention and personally I think that the last time the threads saw the light of day was for their owners' last court appearance. I run into a lot of people I haven't seen for a good number of years, in fact more than one person greets me with the words "Joe Kane! Fuck me, I thought you were dead". The fact that at this point in time a lot of attendees actually look like they've been dead for a number of years is neither here-nor-there.

So we're all in the church, and it's standing room only. The Holy Guy gets up and starts on about what a sound guy Dobbo was (I'm wondering if I'm at the right funeral) and then launches into a story about some musician from

days gone by who is working on his masterpiece but who croaks it half way through. What's this got to do with Dobbo some people are thinking? Holy Guy continues...and it seems that the apprentice to the composer decides to perform the thing his boss was working on when he checks out. So there's an orchestra and there's the apprentice conducting. They play the thing up to where the composer kicks the bucket and they stop. The apprentice says "This is where the Maestro finished, but this is where we begin" and the orchestra kicks off again and they play the new ending.

Everyone's still wondering what the fuck this has to do with Dobbo, when Holy Guy in all innocence says that Dobbo's life was kind of his masterpiece (Jesus, if only he knew) but that he was only half way through it when he died and that the rest of us should pick up where he left off. Amen to that!

I fucking swear you could hear the sound of ten pound notes being rolled up in anticipation. Man, oh, man.

We Celts are supposed to have a reputation for giving our dead "a good send off". I think the truth of it is that we like getting blitzed out our faces and will take any fucking opportunity that's handed to us on a plate. This plate had the added bonus of being absolutely laden with illicit substances.

The idea of getting totally wrecked in memory of someone I couldn't really be bothered with didn't ring my bell, readers, so I made my excuses. I heard later that everyone else partied long and hard for a couple of days. Dobbo would've approved.

Later,

Joe K

horribly_stoned_boy@hotmail.com

In the future it is not hard to imagine that such a grow system could be run entirely off a battery

absorb feed water until the blocks are full and so have enough weight. With the grow system in which the plants hang in their tubs, you are best off using flower pots filled with hydro granules. These granules increase the weight of the flower pots quite a bit, thanks to which the plants don't just dangle all over the place. If you use this technique, I also advise you

prevent unequal distributions of nutrients from occurring in the feed water. This is the result of a number of different chemical processes, but what it all boils down to most simply stated is the feed water in the grow tubs will sour less quickly when you use liquid hydro nutrients.

To keep the souring of the feed water well in check I recommend that you use an EC meter and a pH meter regularly, so that you are less likely to wake up to an unwelcome surprise. But don't go and panic as soon as you get a small variation; most growers make the mistake of acting too prematurely to rectify small wobbles. The plant, after all, has



These new grow systems are used a lot in the horticulture industry for growing tomatoes, but are also excellent for growing marihuana in.



With this system the plants sort of hang in the lid of the grow tub. Note particularly the explosive growth of the root system.

more grip in the constantly circulating feed water. The tubs themselves are made of plastic and so offer the plants little opportunity to anchor themselves. Particularly when you plan to grow in the larger proportioned grow tubs, the opportunities for the roots to anchor are very important, because otherwise they will be constantly drifting here and there in their tubs.

Granules

Once the young plants in the form of clones have been put in their tubs, it is important that they are secured in small blocks (the size of a small flower pot) of rock wool and / or coco. This is because by doing so the young clones are given the necessary stability, thanks to the ability of the rock wool and / or coco to

not to use the same granules for more than one or two harvests, because the hydro granules often have accumulated considerable concentrations of salts.

Since we are now talking about nutrition, for these grow systems in water you are best off using the liquid hydro nutrients (the ones you would use growing on rock wool). This is mainly because these feeds

throughout its lifecycle ever changing nutritional needs, so it can happen that certain nutrients are left behind in the grow tub, with the consequence that you get a difference in for example the acidity level in the grow tub. Furthermore, you are best off just replacing the feed water completely every 10 days or so, and in doing so make sure that you always have a healthy feed substrate in your water.

By Weckels

Part 1: coco-soil mixes

Grow cupboard confidential!

In the next few articles I will be describing a few experiments I will be carrying out in pair of self-built growing cupboards. Among other things we will be looking at which medium gets good results and what environmental circumstances we as growers can best create. We will also be discussing the best varieties of marihuana to use, each with their own characteristics, pros and cons.

In each article we will only be dealing with one of the two cupboard set-ups at a time, so that the big picture remains clear and you can appreciate the overview. Are you curious as to the differences between the grow cupboards? Then save this issue until the next one!



Here we can see the simply-equipped grow cupboard. Two plants are growing on a substrate consisting of soil mixes and added fertilizers, while the other two are growing on a mix of various forms of coco, and added fertilizers.



Here we can see all the small plants standing in a row. There is no irrigation system in this bare bones grow cupboard and so we are just going to water them by hand.

So let's get started immediately and take a look at the first grow cupboard. This grow cupboard is fitted out with a 600 cubic metre air extractor, four 400 watt lamps (so in total 1600 watts) and a couple of further pieces of kit such as an air moisture content meter and a thermometer. But there is a further piece of equipment that this grow cupboard is lacking, namely a professional irrigation system. This is a conscious decision, and so for us there is nothing we can do but to give water to the plants by hand, from a watering can. We never fill this watering can directly with cold water, as this could have disastrous consequences for the plants. We need to ensure that the water that comes out of the tap is allowed to reach a good temperature. Marihuana plants are most happy with a water temperature of 21°C and so this is what we fill the watering can with. We are in fact best off filling the watering can first with lukewarm water, then measuring the temperature and adjusting accordingly by adding more cold or warm water. Only then do we reach the ideal water temperature (21°C).

We never fill the watering can directly with cold water, as this could have disastrous consequences for the plants.

We do not add any liquid nutrients and suchlike to the water, because we have already richly provided the soil we are going to grow in with fertilizers and all the necessary minerals. But we will be coming back to this when we take a closer look at the composition of substrates.

Mixes

In contrast to the other grow cupboard (which we will be looking at in the next issue) this one is less professional and not as luxuriously equipped. The advantage is that this grow cupboard is really cheap, because we have scrimped a bit on some equipment. It's a fair bet that it will strike some of you that this rather rudimentary grow cupboard also has a number of disadvantages; who will be giving the plants water if the grower wants to take a weekend break somewhere, for instance? For this problem a solution has been arranged: the plants are to be grown on a soil mix plus coco, into which we have deliberately mixed very little perlite. By doing this we create a number of different mixes that hold their moisture longer, thanks to which the plants will be able to handle a day without being watered (especially if we give them an extra dash of water the day before). Should we at some stage decide we need to take a whole week away, then some other solution will need to be found.

Root system

But to return for a bit to the different substrates, we are growing the plant in four (flower) pots (each one 11 litres in size) which we will fill with two with a pre-fertilized earth mix (medium mix), the other two pots are filled with a mix of coco, consisting of coco grit, coco fibre and coco chips. In order to make this substrate a bit more attractive to the plants, we further enrich this mixture with worm castings (10% of the total, in this case 1.1 litres) and organic fertilizers (5% of the total, in this case 0.6 litres). Because the coco mixture has variations in its structure, we have created an ideal soil. The rougher pieces of coco make sure that the mixture is and stays sufficiently well aerated (and thus actually takes over the function of the perlite), thanks to which there will be more than sufficient oxygen getting to the roots. The oxygen has a very beneficial effect on the (fast) development of a healthy and strong root system, as well as the

speed with which this root system can develop which is dramatically accelerated by the beneficial (airy) circumstances, thanks to which the plants will also grow faster.

The rougher chunks of coco also promote good water drainage, especially when we make sure that the lowest layer in the (flower) pot is provided with them (the rough remains of coco actually fulfil the function of hydro granules). The finer particles of coco (including the fibres and the grit), by contrast, act as a sort of sponge and therefore keep hold of their water for longer, thanks to which the plants are always supplied with sufficient water (provided that we supply the coco regularly – once every two days – with water).

Snow white buds

As I have previously pointed out, we are growing the plants on two totally different substrates, and this was done on purpose for the experiment, so that we can observe the differences throughout the whole growth and bloom process closely. In order for the experiment to run as fairly as possible, we have of course chosen clones from the same mother. If we didn't do that, then there would always be a number of

Junior League

Joe Kane

I'm back in sunny Spain, and the plan is to recuperate and just mind my own business. I'm here for my health and the "dry air" is good for the lungs or something. Whatever, it's a break away from all the wheeling, dealing, ducking, diving and general fucking about that's occupying everyone back in Bonnie Scotland. This is a break, rest, convalescence and no hassle.

That's the plan at any rate, and it's working pretty fucking well until two mornings into my holiday, I'm sitting sipping a cold one outside a bar when out of the blue: "Joe fucking Kane! No fucking way!"

Now straight off I'm thinking about adopting a pidgin English accent and pretending to be Spanish. Not quite quick enough and next thing is I've got two fucking wide-boys from Glasgow sitting (uninvited) at my table. Fucking great.

I'm smiling while inside my head I'm screaming and saying "Gary boy, how's it going?" Gary I know kind of casually, and as far as I hear he's okay, but the guy he's with, Spider, is a different matter. My good friend Little Jim refers to this Spider guy as "that tattooed cunt" and I bow to Jim's judgment on such matters. Spider is so-called because of the tattoo on the back of his head. He's got a lot of them all over. He's the kinda person who thinks that a lot of tattoos will make him seem an interesting person rather than the deeply unpleasant one he actually is. Space prevents me from elaborating so you'll have to take my word that this Spider is not a good egg. And he's fucking stupid with it.

So they're over "on business" and a few cervezas soon get the tongues loosened and the story flowing. I should tell you readers that I really don't want to be hearing any of this shit, but there's no stopping Gary boy once he's started. Spider's sitting eyeballing the women and getting more pissed.

It turns out that they were on holiday but the plan had changed and now they were taking some LSD back to Blighty as this was something nobody had seen for years so it's deffo a money-making opportunity.

Spider had met a couple of "East Europeans" who were involved in an acid lab somewhere. At this point yours truly says "If I can just stop you there, you mentioned East Europeans so this is going to involve guns and all sorts of unpleasantness and I'll thank you to not tell me another word about it".

Gary boy understands and says no more other than to ask me if I want in on the deal. I thank him for the kind offer but decline on the grounds that my business interests only extend to the weed. Spider looks at me and snorts "Nah, he's strictly fucking small time, Gary boy: junior league". I can't be arsed saying anything so I let it pass.

Some days later I run into Gary boy. The master plan went totally tits up. It seems that Spider got the acid sorted and everything's absolutely fucking cool. Back to Scotland, sell the shit on and Bob's your Uncle. To celebrate, the genius goes out, gets pissed and gets another tattoo. He also gets his first piercing...

Maybe you'll see what's coming, readers. He's at the airport with sheets of acid stuck up his arse and more just rolled up and secreted around his genitals. He walks through the metal detectors and they immediately start wailing cos of the new bit of metal in Spider's dick. He gets stopped, he gets searched, he gets busted. Oh dear.

Gary boy's taking his lot back separately but has to find Spider a lawyer before he goes. "I'll see him later, do you have any message for him?" he says. "Yeah, tell him I may be 'junior league' but at least I'm not in jail".

Har-de-har-har.

joe

horribly_stoned_boy@hotmail.com

differences (each mother plant of course brings her own specific descendents forth, as regards size and thickness of the leaf cover, colour, branching, and so on). As our plants I've decided to go for the K2, a lovely growing variety that produces snow white buds, which

The rougher chunks of coco also promote good water drainage

have brought many a grower to the heights of ecstasy! Smokers too have a lot of positive opinions of this tasty weed. The buds positively bulge with crystals and furthermore, the smell and taste are just superb! The high too is really something to write home about!

Leaves

On the downside, this variety does produce an enormous amount of leaf cover, a phenomenon that sometimes prompts us as growers to wonder if that is all they are going to produce; are we going to harvesting nothing but leaves, or will we eventually get to see some flower heads emerging? Because K2 plants sometimes can indeed produce so many leaves that their production of flowers is impeded (the buds can sometimes receive so little light through the 'green forest' of leaves around them), we give them a helping hand to prevent this. We do this by regularly removing leaves that may be destined to obstruct our buds. When doing this I go first for the poorly growing and/or miss-shaped leaves. It is also an idea to remove the leaves that are receiving little or no light, since they're a waste of energy and space. The leaves that we remove must under no account be just left lying around in the grow space,

since they can become a source of pests and can even become infected with mould and other diseases. The bigger leaves are best off being chucked on the compost heap, since the plant does store a lot of important nutrients in its good looking (!) leaves. Once the leaves have been well and truly mixed in with the soil of your compost heap with a shovel, they will very soon start to decompose. Once they have decomposed then we are left with a richly fertile soil that we can use as a base for future successful adventures in our grow cupboard!

K2 yield

Despite the excessive production of leaves, in terms of yield K2 is not a massive producer compared with the real commercial varieties. This is something that growers in this game mainly for the grams should take account of. But those growers out there who are primarily in it for the quality of the smoke, to them I can heartily recommend K2! The advantages I mentioned earlier, such as the superb aroma and taste and the outstanding high that comes with it more than make up for the somewhat reduced yields!

The leaves that we remove must under no account be just left lying around in the grow space

In the next article we will be taking a look in the other grow cupboard. This one will be a bit more professionally equipped and has considerably more space in it.



Take note of the (clearly visible) differences between the substrates. The plants are being raised in pots with an 11 litre volume.



We have plumped for the K2 variety. This lovely weed will eventually give us snow white buds that have been known to reduce many a hardened grower to tears of joy!

By Weckels

Using a grow cupboard with mapito and coco as substrates (part 2)

In my previous article we took a look at a grow cupboard that was pretty easy to set up and equip. In this issue we'll be trading up and looking at a professionally-equipped grow cupboard, as well as how we can raise plants on two different substrates, so that we can get a good comparison of the (potential) differences.

The grow cupboard that we will be looking at in this article is more luxurious and easy to use than the one we looked at last time. What is more, the cupboard is also quite a bit bigger in volume, which also makes the growing operation a bit more congenial. For the lighting in this grow cupboard I have plumped for six 250-watt lamps. So in total the plants are lit by 1500 watts. We have deliberately gone for six 250-watt lamps rather than, say, two 600-watters. In doing so, the light is more evenly distributed throughout the whole growing area, and this will be to the benefit of the eventual yield. What is more, the plants will develop much better and more evenly than if they had been raised competing constantly for the available light.

Capacity

As well as the difference in lamps, this grow cupboard also has a much larger capacity ventilator. A ventilator with at least 1500 cubic metres capacity is needed to keep the grow cupboard free of stench and overly-warm air. We are also deliberately going for a ventilator with a large capacity (for a grow cupboard), because this ventilator will also be able to suck fresh air (from outside) in to the grow cupboard. To make this process somewhat easier still, we have mounted the grow cupboard on a pallet, which allows us to keep the base of the cupboard open. The ventilator can now suck the fresh air (from outside the grow cupboard) through the gaps in the pallet in to the grow cupboard. This system works superbly and the plants will be continuously supplied with fresh air, which will benefit their growth (and later their bloom too) tremendously. The refreshment of air in a grow cupboard did have a tendency to cause problematic situations in the past in, since every hole or slit in the cupboard allowed a glimmer of bright light to escape, which always had the possibility of piquing the curiosity and attracting the interest of unwanted guests.

The cold air that we suck from outside in to the cupboard also has the beneficial effect of acting as a coolant for the cupboard. Despite the large ventilation capacity the temperature of such a small space, thanks to the many lamps, is raised rapidly. This is anything but handy for the marihuana plants. Even though we do our absolute best to not allow the temperature to rise



Here we can see the professionally-equipped grow cupboard. The cupboard is kept free of stench and overly-warm air by using a ventilator of at least 1500 cubic metres.



The plants are given feed water automatically via an irrigation system. Two plants grow on a substrate of rough chips of coco, the other two plants grow on flakes of mapito.

above 27-28°C, we will still catch the thermometer once in a while creeping up to register a temperature of 29 or 30°C. All in all this is not such a shocking observation, but even so it is something that we as growers should be trying to prevent as much as we can. With a temperature of 30°C, the growth of the plant comes pretty much to a standstill, and that is something of a shame when you consider the amount of energy we're pumping in to the grow cupboard in total!

Irrigation

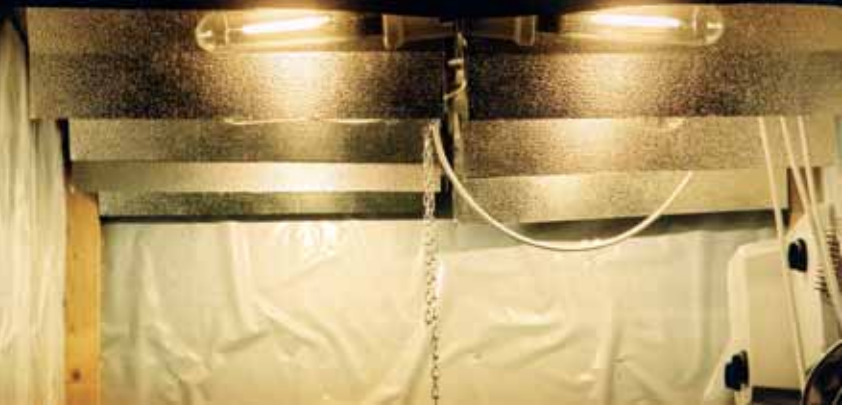
The positioning of the plants is also quite different to the previous grow cupboard. The plants are now stood two by two, which reduces the wastage of light quite a bit. This was not the case in the previous grow cupboard, where the plants were placed in a row next to each other. What is more the slightly large size of the grow cupboard that we are looking at this time can easily accommodate lovely big bushes rather than skinny plants that immediately shoot up in height.

Where in the previous article we were using a somewhat less professional grow cupboard, thanks to which we had to look for creative solutions when we were forced or wanted to take a few days off from the demanding schedule of plant care, this 'problem' is no longer an issue with this professionally-equipped cupboard. The plants this time can bank on a professional irrigation system and this is something that will save us as growers a whole lot of messing around hauling buckets of water. The irrigation system provides the plants during the each light period continuously with water, with all sorts of liquid nutrients mixed in with it. The small drops of feed water with which the irrigation system soaks the substrate makes sure that the plants (over and over again and in equal measure) are provided with everything they need. We are growing the plants on a nutrient-poor subsoil and so we have to find this alternative way of meeting its nutritional needs.

Mapito

For two out of the four plants we use mapito as the substrate. This is a medium consisting of flakes, and one that I have used only once some time ago. It is a petroleum-based foam that is produced for the furniture industry, and it serves as a filling for things like settees. The trimmed off-cuts left over from the production process are sliced up into flakes, whereupon it becomes known as mapito. These flakes have become a popular medium for growers because they weigh very little and they can be used for raising high-yield harvests. It is also a really good substrate for growing on.

The plants are illuminated by six 250-watt lamps. In this way the light is nicely spread over the whole growing area.



Coco

The other two plants are grown on a rough mixture of coco (coconut fibre). The mapito and the rough coco mix are both used in our space in tubs of 80 litres. This large size of the tubs means that the plants have more than enough room in which to develop themselves a healthy and strong root system. Furthermore, thanks to the size of the tubs they will be better anchored and so better able to produce a good harvest. In order to boost the stability in the rather airy flakes, the clones are rooted in very large rock wool blocks. These rock wool blocks suck themselves full of water, thanks to which the plants stand as sturdily as a house. In addition to this, the flakes of mapito and the rough chunks of coco can hold a huge amount of oxygen in them, so that the roots of the plants have no chance of suffocating in their 80 litre subsoil.

The tubs themselves hang in another tub, through which the feed water (gently) streams. There are actually two forms of growing possible with such a system. We can choose to give the young clones, once they have had a few days to develop a small root system, a continuous supply of feed water (via the irrigation system). By doing this the root growth of the plant will be pretty drastically reduced, given that the plant now has more than enough feed water at its disposal. In short, the roots of the plant when using this method will not be prompted to grow in search of new feed water.

Feed water as substrate

The other method is where we give the plants hardly any feed water and hardly use the irrigation system either. The plants will now let their roots grow endlessly, in the hope that they will

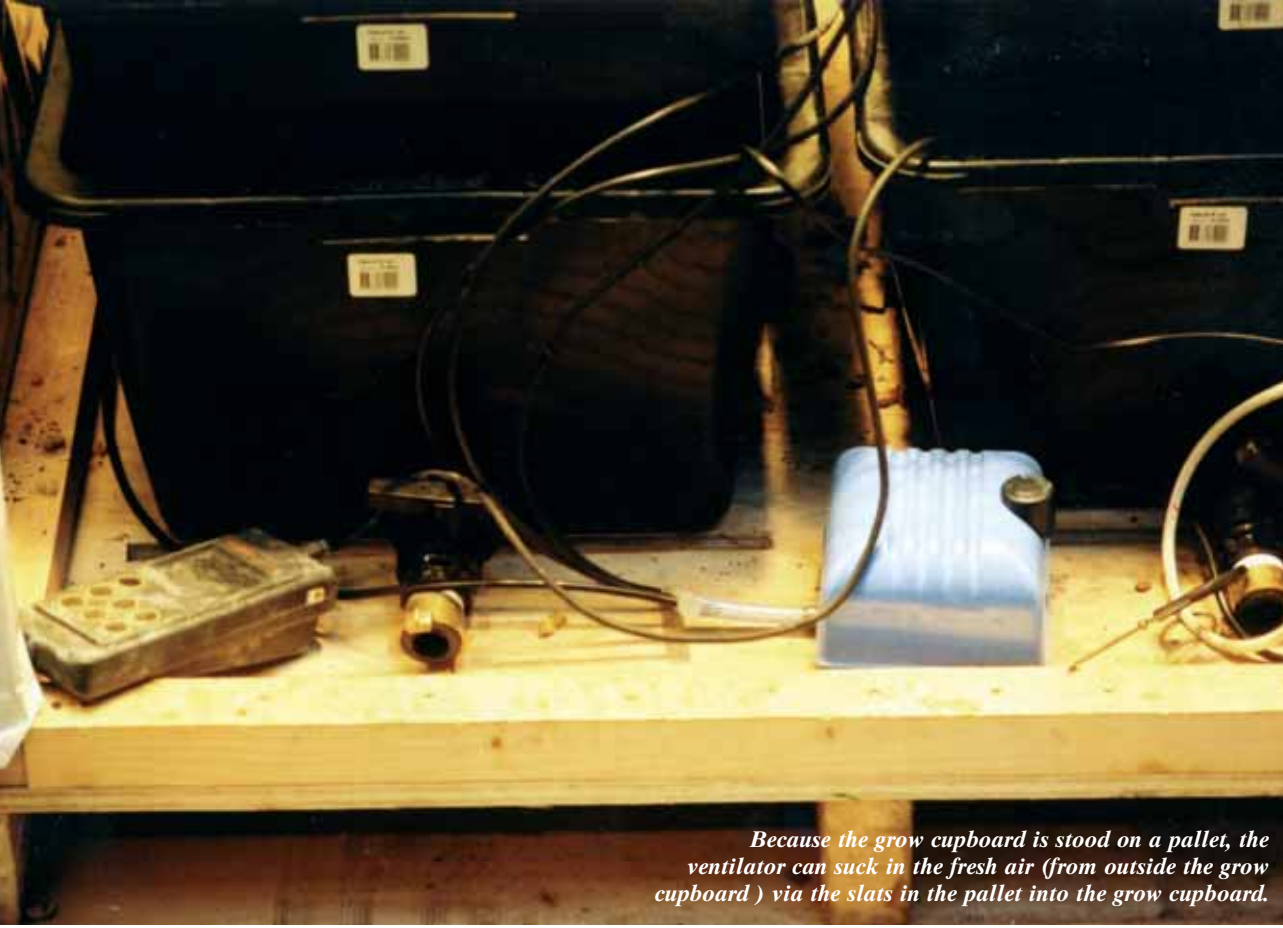
eventually hit more feed water they can use. If the plants can just let the roots grow for long enough, they will come through the drainage holes of the uppermost tub, after which the roots will be able to dangle in to the vat with the feed water in it. Now the roots of the plants have reached true paradise and can take up and supply the plant with as much feed water as they can possible wish for! Now we have established a system that is (more or less) the same as the growing method we use whereby we raise the plants exclusively in their feed water as their substrate.

Harvesting

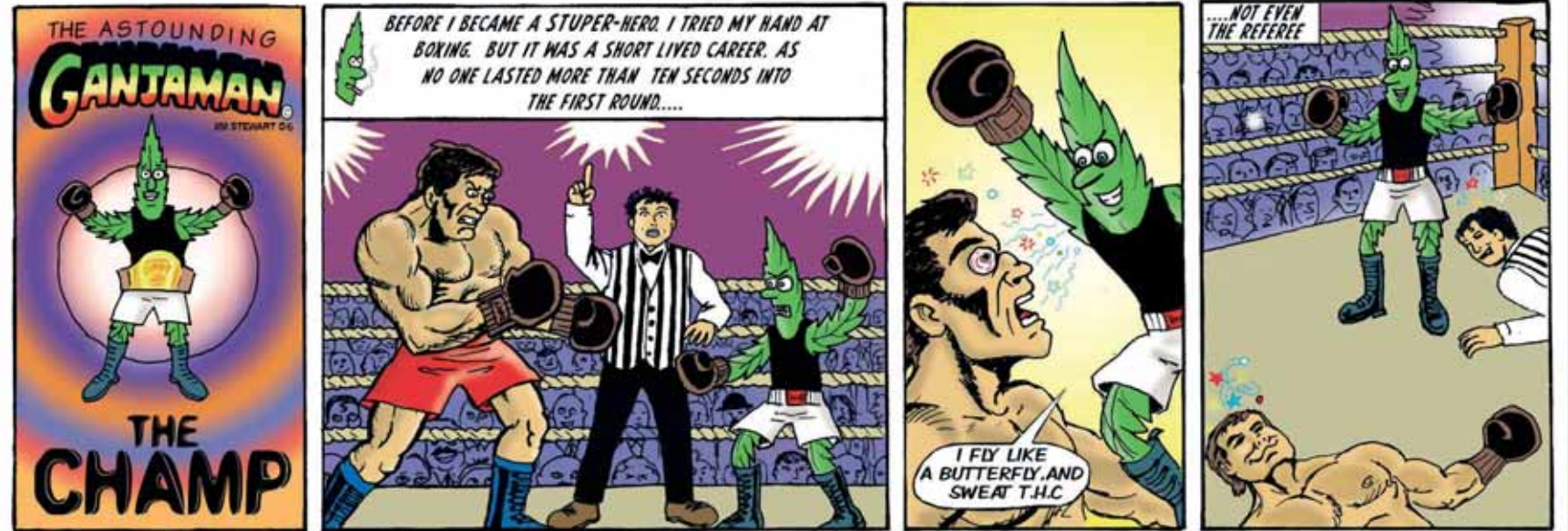
Which growing method deserves our preference is actually quite hard to say, because with either grow method we can get very good results come harvest time. So essentially it is up to you as a grower which you prefer. It should be noted though that the latter method, whereby the roots are encouraged to grow as long as possible (as they grow in search of water), does require a

bit more experience from the grower. We are still saddled with the dilemma of whether to give the plants water immediately or not in order to make a good root growth possible. Should we give the plants too much feed water, then the roots will never reach the required depth. If we give the plants really (far) too little feed water, then they run the risk of being killed off. In short, it is down to the grower's 'feel' when it is finally time to give them water. This can be pretty tricky for novice growers, so maybe it is better after all if they stick at first to the former growing method (in which we give the plants feed water continuously during each light period via the irrigation system).

In the following article we will be taking another look at our original (more basic set up) grow cupboard. We will be looking at among other things how we can keep the luxuriantly-growing marihuana bushes under some sort of control, so that we can make a good harvest possible!



Because the grow cupboard is stood on a pallet, the ventilator can suck in the fresh air (from outside the grow cupboard) via the slats in the pallet into the grow cupboard.



By Weckels

Growing cupboard confidential (part 3)

In the article of two issues ago you could all read about the K2 plants that we allowed to complete their pre-growth in a simply-equipped grow cupboard. Of the total of four plants that were grown in this cupboard, we grew two on soil mixes, and two on mixes of different sized coco granules. Whilst the K2 plants back then were still small, only just rooted plants, by now they have managed to develop in to lovely, strong bushes and what's more, we have already had them in bloom for four weeks now. The result is plain to see! The well-developed plants have bright, deep green leaves and the

flower heads are beginning to increase in size rapidly. In order to maintain this favourable development of the flower heads, it is important that we regularly remove the necessary (preferably the poorly developed) leaves. By doing this we ensure that the flower heads get (more than) enough light, which in turn will be to the benefit of their development and crystal production.

Buds

Besides removing the leaves, we also 'top' the plants (remove the uppermost growth

tip from each plant). Thanks to this the plant will branch out (even) more, and we also at the same time put a brake on the upwards growth. If we were not to do this, then the plants would pretty much only grow in height and we will never be able to enjoy the full surface area of the grow space. On top of that we have the fact that in the cupboard we are only growing four plants, and so we are striving for a really good harvest from each plant. To make this possible it is important that we raise a plant that is well branched, has a sturdy main stem and that has developed strong side branches. In short, in a cupboard we

want nothing to do with tall, skinny plants that within eight days have sprung up to a record height.

Fortunately the K2 belongs to the Indica family and that makes the plant develop nice and small and compact. So in short, it is the ideal indoor plant! But there are a few things we can do as growers to help the plants develop in to compact bushes. In this way the plant will manage to reach a dimension that is within the limits set by the space available in the cupboard, yet still produce a decent volume of good quality weed at the end.



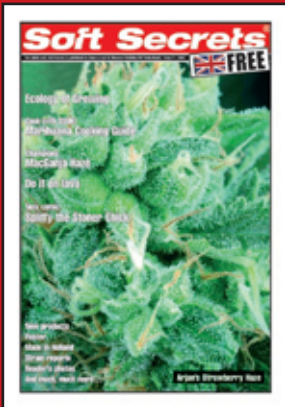
The flower heads on the K2 plants are starting to develop nicely.

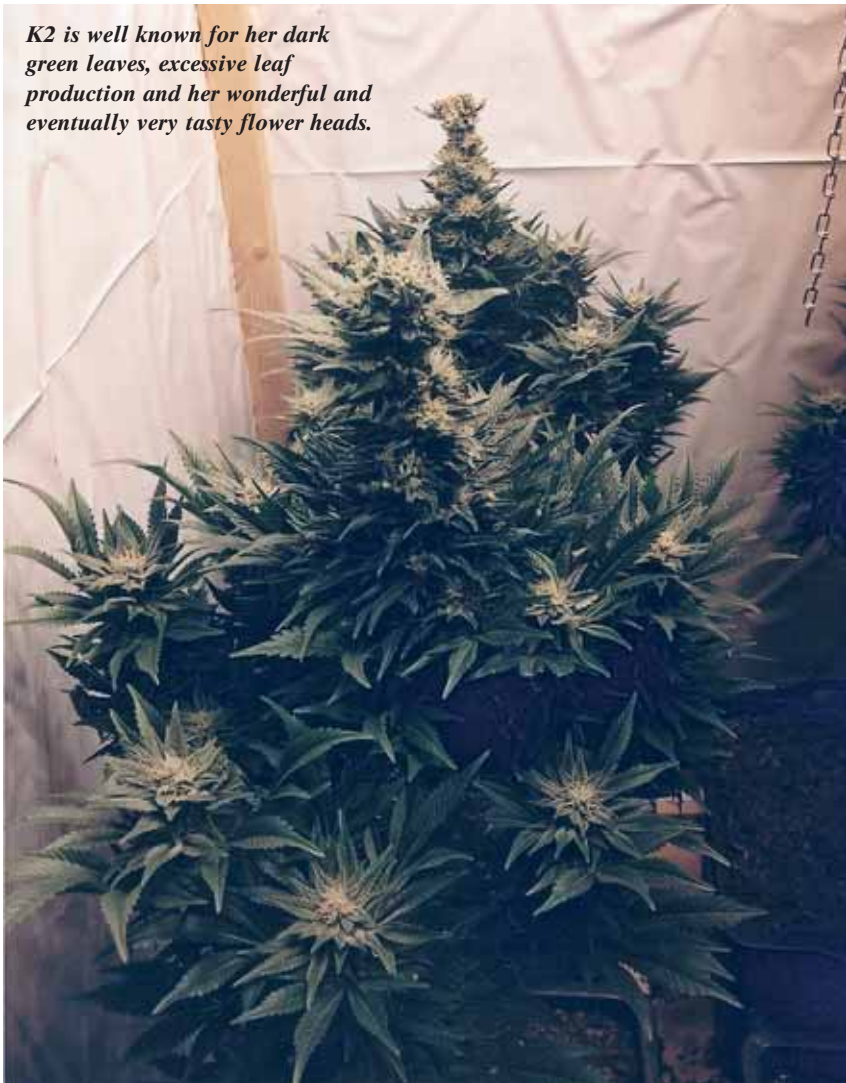


We positioned the plants in two by two prior to the arrival of the bloom period. In this way they receive quite a bit more light, and the plants can better develop their side branches and therefore their flower head production will be better too.



Download your back issues of SSUK for **FREE**
www.softsecrets.nl
Print it and you'll know it!
Soft Secrets UK: essential reading for Britain's growers, tokers and cannabusinesses!





K2 is well known for her dark green leaves, excessive leaf production and her wonderful and eventually very tasty flower heads.

K2 outdoors

Although K2 is best known as an indoor plant, outdoor growers tend to book reasonable-to-very-good results with this plant variety. The K2 plants are also ideal for growing on a balcony or roof terrace, given that they remain so small and compact (with some exceptions) and therefore have quite a bit more resistance to wind (gusts). As well as this the K2, thanks to her large leaf production, can thrive outside and can utilise sufficient light even on days without much sun. All this makes K2 a much-loved variety even among outdoor growers.

Snapping

But whatever the charms of outdoor growing, we must put them aside for the moment and return to the issue at hand, namely: creating as ideal conditions for

our K2 in the growing cupboard as we can. As I mentioned earlier, removing the top shoot (topping the plants) is strongly recommended, provided that it is done with a little care. Topping plants is actually not so difficult as long as you go about it gently. Some growers simply snip the top growth shoot off. Personally, I prefer to take the growth tip between two fingers and carefully snap it off. By doing this we can limit the wounding of the stem considerably and prevent unnecessary sap loss. There are actually a lot of sap streams flowing through the stalk of the plant, which supply the whole plant with nutrients. If we were to snip the growth tip off with scissors then there tends to be a sharp (cut) end (where the growth shoot was removed) and the plant will have difficulty healing the wound. An unnecessarily large volume of (nutrient) sap is lost from the plant as a result.

Flower heads

To prevent this we are better off snapping the top growth tip off carefully, so that we pinch the stalk and so stop the sap stream from seeping from the wound. The plant can now more easily repair the wound. Of course, it should go without saying that we should top the plant during the growth stage, so that the plants have a chance to heal themselves before the onset of the bloom period. What is more, topping the plants during the bloom period should be out of the question given that besides the fact that we would be removing fairly well developed flower heads in the process, the chances of mould getting a foothold in increased. The wound (the point where the top-most growth tip was removed) might also in a worst case have difficulty being repaired, which could lead to the plant dripping nutrient sap over the flower heads, with terrible consequences a possibility, since this can increase the chances of mould setting in quite a lot.

Pleasant

In order to make the whole bloom period generally even more pleasant for the plants, we have positioned them two by two next to each other rather than side by side. In this way the plants will get more light and they can better develop their side branches, and so also their flower heads. As well as the improvement in the light conditions (by arranging the plants differently), we also give them a little bit of bloom feed, bloom stimulators and we add some PK13-14 to the nutrient water.

During the growth period we had deliberately not given any liquid nutrients and stimulators with the nutrient water, since we had already created a rich supply of all the right substances in both substrates (the soils mixes and the coco mixes). Even though the plants will have already used up part of this original supply of nutrients, when we start adding liquid nutrient we have to keep in mind that the plants will continue to get part of their nutritional needs met from the ‘fixed’ fertilisers. So factor this in and keep an eye on reducing the chance of any over-fertilizing, and when applying the liquid nutrient and stimulators, use half

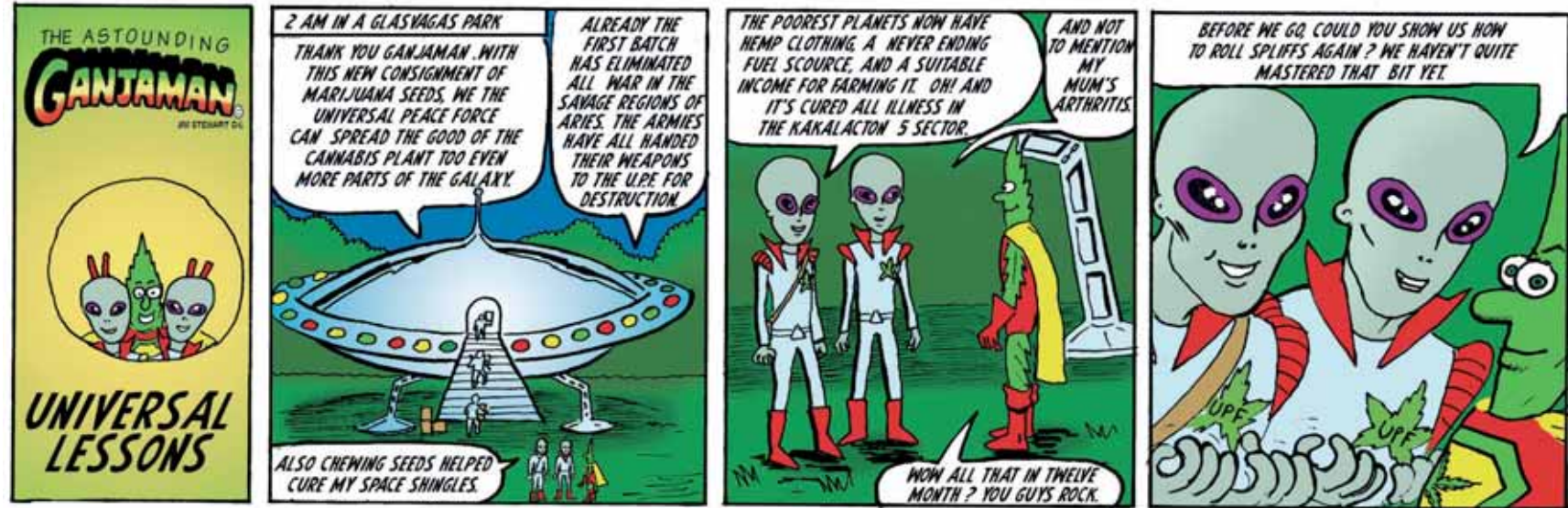
the recommended dosage. In this way we can replace uncertainty with certainty and minimise the risk of giving too much nutrient considerably. Your calculations are also of course dependent on just how long you have been keeping your plants on a water-only diet and relying solely on the nutrients originally mixed into the substrates.

As many growers know, marihuana plants are mad about richly-fertilised feed bases and can, given favourable living conditions (lots of light, sufficient water and an ideal temperature), rapidly deplete them. The longer we allow the plants to pre-grow, the bigger the chance that the plants will already have used up a good part of certain nutrients. In other words, the plant will no longer be able to extract these important nutrients from the existing feed base. In order to make up these deficiencies we give some supplementary fertilizer to the plants in the form of liquid nutrients added to their water (having mixed them well first!).

Often as a grower it is often a case of simply keeping a good watch over your plants. When they look lovely there is no need to give them extra (liquid) nutrients. However, things happen at an accelerated rate when growing under artificial light and sometimes it is better to leave a certain shortage unsupplemented than that we try to force the plants in all kinds of ways to use the provided nutrients. Make no mistake, a plant dealing with a (serious) nutrient deficiency will be considerably hindered by it, and will be slowed down in both its growth and bloom. And that is the last thing we want as growers operating in such a limited space!

In the following article I will be taking another look inside the growing cupboard filled with coco and mapito substrate. Among other things we will be looking at the ideal growing conditions and the development that the marihuana plants have undergone. As well as this we will also be looking at whether there are any differences in the growth of the plants. The green ladies are being raised on different substrates after all.

It only remains for me to wish all readers, growers and others involved in the industry a good new year, and express the hope that 2007 will be a year filled with marvellous buds!



Building Hoods



Get together as much of the wood you will in advance, so that the construction of the hoods runs as smoothly as possible.



As well as the electrical staple gun, in this photo we can see all the tools that we need for building the hoods.



We fix the planks with screws to the piles, and in doing so make sure that the construction will be able to withstand even the heaviest of storms.

In this article we are going to be looking at how to build special hoods around the (female) plants, which will better protect them against stormy and wet Autumn weather. As growers, we obviously would prefer to harvest the many lovely flower clusters that the plants produce during the Autumn in as good condition as possible. For this reason, the hoods we are going to build offer a real tangible result. What's more, these hoods make it possible even to grow the long-blooming varieties in our climate. Naturally we also need a little bit of luck with the temperature (it mustn't freeze too hard), with that bit of luck and a strong hood as protection (around and above the plant) we can be harvesting our plants right up to the end of November!

Protecting late bloomers

But for the early-blooming (outdoor) varieties too, these hoods can offer firm advantages, given that the higher temperatures under the hoods is most welcome by the plants. Also, the plants will now take up more feed water, on account of the higher temperature giving more energy and so a more vigorous sap stream through the plant. The hoods also mean that the plant will get very little rainwater falling on them, meaning they will be more able to take up the nutrient- and stimulator-enriched water we give to them. Previously this would have been a problem because the plants in Autumn would expect to spend a lot of time over-supplied with rainwater. Were we to give also them enriched water (water with all kinds of nutrient and stimulator added), we would most likely do more harm than good.

Before we start to actually make the hoods, it is a good idea to begin by getting together all the stuff you will need to build them with in advance. This is a good way of keeping an eye

We should aim to build the hoods between the middle and end of July, since by then the plants will have put their main growth spurt behind them.



The sharp corners are neatly trimmed off with cloth (as here, an old sock), so that the agricultural plastic is not later torn on them.

Getting to work

When you have managed to get your hands on all the above, then we can get to work. We should aim to build the hoods between the middle and end of July, since by then the plants will have put their main growth spurt behind them. The plants now have more or less reached their eventual dimensions and so the chances of the hoods we make ending up too small is zero. But the plants will still increase in height (especially when the flower heads begin to form) and this is something we will have to take into account. So we build the hoods preferably as large as possible in girth (as well as above) around the plants, so that they do not allow the flower heads to come into contact with the (agricultural)

By Weckels, the grow specialist from Atami

plastic at any stage. If this is allowed to happen then, then there is a good chance the buds will be damaged as the plastic rubs against them.

Mental preparation

So it should be clear already that the very first thing we need to do is measure everything well before we start actually building the hoods. We also need to think about the time of day when we plan to begin building them. For example, should we decide to start putting them together early in the morning (in order to avoid the hot summer afternoon temperatures), then there is a good chance that we will cause some irritation to our neighbours. What's more, many people will become suspicious if we start taking up DIY at the most ridiculous times of the day. So the evenings or even the hours of darkness can be a bit dicey, because there's a good chance you will be mistaken for a burglar, what with all your tools and sneaking around. During the Summer months especially, people leave en masse their accommodation for the warm South, and then the extra police surveillance laid on makes it a precarious adventure for the outdoor grower who's planning to build himself more than five hoods during the hours of darkness. In addition to the police you'll also have to worry about attracting the attention of weed thieves with your special hoods. It is too often the little snout-nosed teens with



These plants are standing behind each other in a nice row. Because they are all of the same height, it is pretty easy to make a single hood constructed over all of them.

no inkling of how to build up the requisite skills with which to grow their own dope who will be most thankful for all the effort, you oh enthusiastic outdoor grower, have put in. They will often case out the place – your garden – thoroughly before coming back several months later to strip the patch clean. Particularly when we're growing the late-blooming varieties under hoods we also have to beware that a location that in full Summer seemed like an ideal one vis-à-vis privacy, in the Autumn can change its suitability dramatically, as the majority of trees and bushes begin to lose their leaves. Bear in mind too that it may sometimes be better to not build any hoods at all, given that these mysterious-looking constructions risk attracting the attention of the curious, maybe including potential weed thieves, or 'rippers'.



Because here we have pushed the plastic roof up with a pole the rain water can easily run off.

Power of the wind

Assuming you have decided to go ahead, let's turn first to the cutting of the agricultural plastic: I'd advise you wait with this stage and cut it to length once the hood construction is all but complete. You would not be the first handyman to stumble across a substantial tree root or even a pipe or cable (always watch out for these) and be forced to suddenly revise the size of their hood to larger than they had originally in mind. If this happens it's a shame to have to throw away carefully cut plastic that is suddenly too small, which you will because sticking two bits of plastic together rarely works. The wind and the rain will soon be ripping through any chinks that appear, battering your fragile flower heads.

Once we have measured out the correct size and have dug (without encountering any major problems) four deep holes around the plant(s) - leave plenty of room around them; really big hoods will need six holes - we can stick the piles straight

or snapping. That's why I generally use screws (preferably rustproof steel) for fixing the planks to the piles, because these hold the plank more firmly in place. Nails also have the drawback of splitting the plank while they are being hammered in. Once we have firmly attached most of the slats/planks to the piles, we screw a few thinner wooden joists between the planks. These make sure that the pressure exerted on the plastic by the weather is evenly spread across the piles and connecting slats/planks.

Padding the corners

To make sure that the agricultural plastic does not rip on the sharp (and therefore dangerous) corners of the hood construction, we round the corners off with scraps of cloth or old towel or something, which we can secure with small nails to the corners. Rounding off these sharp corners is very important because although the agricultural plastic sits fine as it is being attached even if we don't pad the corners out with cloth, heavy storms can rip the entire sheet to shreds if even a tiny

going to lose it all in the first gusts of Autumn. If you live in a densely-populated district or if your growing patch is well surrounded by trees and / or fencing, then it is better to go for the thinnest thickness of plastic.

Stapling the plastic

With the four piles driven firmly into the ground, the wooden planks onto which the plastic will be attached in place, and the sharp corners well padded with old cloth, we can stretch the agricultural plastic over the whole construction. Next we staple the plastic securely to the slats and the piles. This goes much easier when we use an electric staple gun, given that a hand stapler often has too little power to drive the staples fully into the wood. An electric staple gun that

I advise you to use rustproof steel staples for attaching the agricultural plastic. The heavy rain and wind that will assault your hoods in Autumn will make short work of the cheaper (usually galvanised) staples, so that within a short space of time the agricultural plastic will start springing loose all over the place (the staples soon break as they rust).

Mind the gap

We do not staple the plastic all the way down to the ground; the first meter up from the ground we leave free of plastic so that the wind can still blow under the hoods. This is very important for good air ventilation and circulation, which prevents in turn the air moisture level under the hood getting too high and increasing the risk of mould infection. Finally, not

Bear in mind too that it may sometimes be better to not build any hoods at all, given that these mysterious-looking constructions risk attracting the attention of the curious, maybe including potential weed thieves, or 'rippers'.

has decent power (so it works quickly and easily) is not exactly cheap, thanks partly to which I always hire one instead of buying myself one. You can hire them from a special tool rental shop or from the better DIY shops. Remember that such things usually need a deposit paying and some sort of proof of ID might be requested.

bringing the plastic all the way down to the ground also has the advantage that we can still easily get at the plants and so the flower heads too, in order to keep the flower heads under a watchful eye.

Another trick that we can apply to making sure the plants do not become subjected to too high an air moisture level is to



The garden is soon filled with hoods, which for (outdoor) growers is a sight to behold. Now let's hope for a great harvest!



In this photo we can clearly see the cross-cutting joists. These spread the weight of the resting on the piles and keep the agricultural plastic off the buds.

In addition to the police you'll also have to worry about attracting the attention of weed thieves with your special hoods.

down into them. Then we shovel the holes full again with earth or sand. Once this task is done, use the back of the axe or the large sledgehammer to knock the piles down deeper into the ground. In this way, try and bash the piles another half meter deeper, making them a total of 1.5 metres into the ground. It is absolutely vital that the poles are good and deep (and therefore sturdily fixed) in to the ground, because the hood construction will need to survive pretty heavy pressure. The hoods will need to weather many Autumn storms and yet still under no circumstances fall over and/or learn over into each other. Should either of these happen (because the piles were not sufficiently well anchored in the ground) then the damage to our plants will be immeasurable.

Adding strength

Once the piles are firmly in the ground, screw to the tops of the them (from pile to pile) the slats or planks of wood to which the agricultural plastic will be fixed. These slats or planks will also have to withstand quite a bit of pressure without bending

tear in the corner appears. These tiny tears can be the starting point of a complete crop wipe-out, given that torn free pieces will flap around like a demented whip among the plants and flower heads, cutting them to shreds. So think ahead, and carefully pad the sharp corners one way or another so that the wind is given no chance to wreak havoc.

Since we're talking about agricultural plastic, this is available in various thicknesses and therefore price classes. Using plastic with a decent thickness has the big advantage of being hard to tear, but alas, thick plastic also has the drawback of letting through less sunlight. This is detrimental to the plant, as the thicker the plastic, the less sunlight is going to shine on the leaves and so less energy is made available to the plant. But the thickest plastic does also keep the heat in for a bit longer than if we used thinner plastic. For these reasons, it is an idea to look carefully at the sensitivity of your growing patch to wind. If you live somewhere out in the exposed countryside, then a thick plastic is probably necessary at least you're not



The climate under the hoods creates a paradise for the blooming plants; the temperature is nice and raised and the flower heads are protected against the wind and the rain.



The flower heads will quickly begin to develop. There are excellent yields to be had under hood constructions, even if they do need a bit of extra effort putting into them.

cut some round holes in the corners of the agricultural plastic. These holes will let condensation that comes from the warm air rising out, rather than forming a layer on the plastic roof and walls and dripping back onto the plants (and thereby drenching the buds with water). These round holes are therefore vitally import for the plants, since without them the hoods would turn their environment into a damp, sweltering mould incubator rather than a protection against the high moisture of the outside air. We cut the holes round deliberately so that the wind gusts cannot tear the plastic; if we cut them square, this would happen much more easily.

Roof like a tent

Once this small task is done, we do the last but by no means least important step. We have to place poles under the agricultural plastic so that the roof is pushed up to a point, tent-fashion. Here

too, make sure you pad the end of the pole that is coming into contact with the plastic with a thick layer of cloth so that it does not push through the sheet. With the help of the pole stuck into the middle of the plastic sheet, we create a tent effect so that the sloping roof now lets rain water run off it. If we don't do this, then the hoods after a rain fall would be covered in puddles of rain water which when taken together add up to a considerable strain on the roof of the hood construction. This is very dangerous not just for the construction, but for the plants too, as

the puddles of rain water will over time become heavier and the plastic will start to stretch and begin to tear or in the worst case bring the whole thing down.

In either case, the result will be destruction of your plants by the huge amount of water suddenly released over them through the roof, or by the collapsing planks, slats and wooden poles. It has happened once to me and I would not wish it upon anyone: a beautiful Top44 plant that just needed two more weeks' flowering to be ready for harvest was crushed in a single blow when the plastic sheet ripped thanks to the amount of water that had collected on top in just one night. The force of the rain water broke off all the branches, leaving all the buds mashed into a thick layer of mud. What had been shaping up to be a great (future) harvest was turned in just one night into the biggest disaster I'd ever had. From such experiences you can only

learn as a grower, but I can say I have not regretted adding a padding to the stick keeping up the roof of my plants hoods ever since.

Don't pack your ground

The plants I grew under hoods for the accompanying photos were all grown in the ground. This works absolutely fine, so long as we make sure that the earth around the plants does not get too firmly compacted. Certainly this can happen a lot more quickly than we would wish while we're constructing the hoods. The roots of the plants can easily become suffocated, with your plants dying as a result and your whole grow year being wasted. To avoid this we can carefully turn over the soil a bit (also under the outer edges of the hood) and/or prick holes in the soil (with a bamboo stick, for example), so that the roots can still get enough oxygen. Naturally we do all this with the greatest of care! After the hoods have been built, it will soon begin to dawn on us that the weeds are also finding this ideal climate just as to their liking as our plants. The weed population, that usually consists of nettles and grasses, can often take a large part of the available nutrient in the away from the marihuana plant, while what's more the low-lying weeds can hold a lot of dew and thereby increase the threat of mould to our plants. Thorough weeding and weed removal will prevent a lot of trouble and should be a part of our efforts to pamper our marihuana plants as best we can.

Hood for all seasons

Once we have harvested the plants and have been suitably stunned by the



Here too, the plants are well protected by their hoods. The round holes serve as exits for the condensation, and we leave the bottom-most meter (more or less) open and free of plastic, with an eye to good ventilation and air circulation.

quality of our weed, the hoods can be broken down again. So long as we do this carefully and completely, we might be able to use the materials for next year's crop. The smart (outdoor) growers among us sometimes leave the hoods up so as get a new set of seedlings in under them into pre-growth in the following spring. Then the frequently cold Spring weather can still be taken advantage off as the young seedlings can be raised under the protection of the (existing) hoods. If you think you might want to do this, I would advise you to for the most part replace the soil that you have just raised a harvest in (to prevent poisoning the following generation of plant) with new soil and then mix in the necessary soil mixes. The soil life, including the bacteria, will then have plenty of time to make the nutrients in the soil nice and available when the next generation of marihuana plant is placed in the ground...

Good luck!

Such beautiful and high quality marihuana is (more easily) achievable with hoods. This surely makes building them more than worth the time and effort!



Using only pollination

Create your own hybrid weed varieties

By: Weckels, the grow specialist from Atami

In this article we are going to try to create our very own, perfect outdoor marihuana variety using only pollination and cross-fertilization. I'll be using the article to outline as clearly as I can exactly how you can best achieve this and what you have to watch out for

The growing of good outdoor weed often begins with choosing the appropriate variety to grow in the first place. After all, by no means all marihuana types will fulfil our expectations completely. Certainly when we intend to raise the plants outdoors in damp and sometimes bleak countries like the Netherlands or Great Britain, we are going to have a whole list of requirements for our new variety.

That pollination of self-raised female plants can yield a whole pile of seeds is no secret to most growers. Some are already so happy with the outdoor variety they are already using that they would prefer to grow it again next year, given the choice. That's why there are growers who always take a few clones off the best mother plant (before she begins to bloom) and shower them with loving care and the best light they can get out of a fluorescent bulb to bring them through the Winter.

All well and good if you have the space and the time. But you can count on the clones not being as powerful as the original mother from the year before. This is because the clones brought indoors and only subjected to artificial lighting to keep growing will actually have gone into "survival mode" - just hung on to life. If we had put the clones immediately under a 400 or 600 watt lamp, then by Autumn we would have been saddled with huge mother plants. What's more, most outdoor growers chose to grow outdoors in the first place because they do not have the space and/or they considered the risk of growing indoors too high. For them it is impossible to be letting clones continue to grow indoors in Autumn. So for them there is no alternative but to start again next year from seeds and hope to get lucky with a mother plant as precious as the one they came across this year.

But if we contrive to raise a well-developed male plant from the same variety as a favoured mother plant then we can use this to fertilize the very best developed mother. In this way we are ensured of having a decent outdoor variety again next year from the ample supply of seeds she will produce.

Now I know most growers will consider it a shame to waste their well-developed flower heads by fertilizing them, given that they'd rather see a nice heap of weed rather than a couple of hundred seeds. I also personally choose only to fertilise the least-developed flower heads with the male pollen. I do this simply by



Every new variety has its own characteristics. Every variety of marihuana produces its own specific leaves that identify themselves by differences in size, appearance and colour.



This was one of my very best hybrids ever. This female plant had already begun in the third week of August to bloom and produced (due to this) an outdoor weed of staggering quality.

first removing all the well-developed buds from the plant, before I bring the pollen into contact with the remaining flower heads. This is possible, so long as you take care that the male plant is never in the vicinity of the female plants, from the moment that she begins to come in to bloom and male flower heads begin to form. That is partly why I always grow my male plants in pots, so that they can easily be moved when the time comes. The flower pot really does not to be that big; one with a volume of 10 litres will be more than sufficient to raise a nicely developed male in. Given that the pollen of the male plants can spread for miles and there's nothing

we can do to control it once the wind has got hold of it, I prefer to place the male plants in a separate sealed off space, one in which there is still enough (sun) light. In this way we can prevent the pollen from spreading on the wind and thereby causing a disaster for us (or indeed another grower down wind). It would not be the first time that a grower had lost his whole crop thanks to the sloppiness of a third party with his or her male plants. That's also why it is not for nothing that most growers develop murderous tendencies at the moment that they see a male plant, let alone let them bloom. There are even indoor growers who can still remember their

nightmares: a lovely grow space full of female plants, on which the buds have been getting fatter and stickier. Nothing seemed to be wrong, right up to the day that the air conditioning started pumping a strange whitish-yellow powder all over the flower heads. These same flower heads promptly halted their development, and to the horror of the grower, all began to develop seeds in them. It is good grounds for a failed harvest, since once fertilized, female plants bulge with seeds, sadly making them only fit for the budgies. What's more, the flower heads also develop an extremely sour smell once they start producing seeds, which is the last thing that's going to make someone happy.

Even the seeds will offer you nothing in compensation, given that we have no idea what variety the male pollen came from. After all, what use have we of seeds when we have no idea which variety we're dealing with, let alone how long the plants have to bloom, and how the eventual buds will turn out at the end?

The drama described above is especially pertinent to growers who live within pollen-drifting distance of industrial hemp fields. Here the marihuana plants are raised for their production of hemp fibres and the plants are generally harvested before the female flowers have had a chance to form on the plant. Sadly, male flowers often blossom several weeks earlier and as a result can cause total disasters for surrounding (indoor) growers who fall victim to the huge quantities of pollen drifting about. What's more, male plants are far less dependent on the number of hours' sunlight in order to start putting out (male) flowers than are female plants. In other words, male plants are liable to begin blossoming when, for example, it is still the middle of Summer and the number of hours light would have been optimal (for the growth period). Sometimes male plants that have grown in a very poor spot and/or have been stressed for some reason, spontaneously break out into flower. For these mysterious deeds there are no real explanations to be found. This is partly the reason why so many (outdoor) growers have such anxiety about male marihuana plants.

Also, many an outdoor grower has actually seen his or her marihuana patch ruined in front of their own eyes by pollen. For outdoor growers there is absolutely no escape if something like this (a rain of male pollen) occurs. Indoor growers by contrast can, by using a very fine filter, limit the damage to less than disastrous levels. Another tip is to make sure that any air sucked into the grow room from outside is drawn from as close to the ground as possible. Most pollen is to be found drifting up in the air rather than wafting along the ground, and recognising this can save many

OUTDOOR



This cross is a descendant of a variety with a short bloom period, the offspring of which furthermore very rapidly developed a large size.



Stress, as has obviously been experienced by this curled up leaf, can easily trigger the male plant to bloom, irrespective of the hours of sunlight it is receiving.



This male too has had a few problems, and begun already in June to produce male flowers.



indoor growers some peace of mind that they can protect their ladies to some extent.

To return again to the issue of pollination and thereby fertilization of the mother plant. When we know how to collect the pollen ourselves, then we can pollinate the female at a time we choose that's best for us. In place of giving nature free reign, we catch the pollen in plastic bags. There are growers who swear by paper bags, as these let the plant breathe. I prefer the plastic ones myself, given that in our moist climate paper bags can quickly become soggy. Should there have been any pollen in these bags, then it is stuck for good on the wet paper. What's more, it is very important that the pollen remain as dry as possible when gathered and that's going to be a problem if the bag is even a little damp.

We let the male plants grow just as the female ones at first. During the growing phase of the male plants we need to make sure that only the best-developed branches are allowed to remain. Only once the plants have started to bloom and the male anthers (in which the pollen is made and stored) are more visible, do I begin to keep an especially keen eye on them. I then remove as many of the leaves as possible, as this will reduce any problems of condensation later when we put the plastic bags over the male flower heads.

By taking cuttings from male plants and putting these indoors under a lamp to come into bloom (by setting a 12 hour light period), we can collect all the pollen we need early in the year.

Once the male anthers are nearly ripe and stand on the verge of bursting open, I place plastic bags over the male flowers and fasten these tight with an elastic band. We need to position the plastic bags like this so that the pollen falls directly out of the anthers and is caught (without it being able to get out of its plastic bag). We also need to bear in mind that the plastic bags may remain over the flowers for at most a day. Were we to leave it on for, say, a week, then we'd have condensation all over the inside, because the male flowers also give off water vapour (just like all other plants).

That's also why it's a good idea to check your bags regularly or let them breathe a little, as long as no pollen is actually falling off the anthers. In this way we can prevent ourselves a load of aggravation and we still keep the male flowers in good a condition as possible.

The plastic bags themselves need to be transparent so that the male flower heads can continue to quietly ripen with the light they get from the sun. In addition, we can better see what's going on, whether any pollen has yet accumulated



Preferably put the males indoors, in front of a window. In this way they are safely removed from the vicinity of the female plants.

in the bag. If this is the case I snip the side branch off below the plastic bag (or the main stem if the flowers are at the top of the plant) and take the branch and bag indoors (left in a spot where it won't get shaken). We need to get the pollen out of the plastic bag as soon as we can so that we get our hands on it while it's still as dry as possible. If the pollen gets damp then the chance that it will become a victim to fungal attack is increased.

Even when the pollen is good and dry it

still has a limited shelf life and its quality drops quite quickly. If you keep the pollen cool and dry you can expect to be able to use it for about a month. Thanks to this short life span it is far from easy to cross fertilize all varieties, given that a late-blooming female variety for example can not be crossed with the pollen from a late-blooming male variety. You can freeze the pollen, which will extend its usability to three months.

I usually keep my pollen in small ziplock weed bags. These are ideal for keeping pollen in since they are small in dimension yet can still be sealed still air tight (by clicking the two upper sides of the bag together).

If you decide to keep the pollen a little longer and so freeze it, it is best to separate the anthers and any small leaves from the pollen. When I decide to



] It is all well and good that these males are already safe behind glass, since a number of anthers have already burst open (and are lying on the sofa), and could have led to a disaster outside!

use the pollen myself within a couple of days of gathering it to fertilize some females, I spare myself the bother and just save the pollen, anthers and all. Never forget to number your bags and note which varieties their contents come from. This is especially important when you have collected pollen from a range of varieties. If you forget to do this, for a start you know nothing about the characteristics of any new hybrid you make, and that does not make our life as an outdoor grower any easier. What's



Well developed, male flower heads can pump out a phenomenal amount of pollen. A very small amount of pollen is often more than enough to fertilize a number of females.



The anthers are beginning to develop more and more. It will not be long before the males will be spreading their pollen around.



When we choose to let the male plants mature outside, we can best capture the pollen with a plastic bag. Cover up the male flowers one by one.



This is how the plant looks when we have covered all the male plants with plastic bags. Prevent condensation in the bags by airing them (or replacing them) regularly.

more, it would be horrific to have put together a really top class variety, and then never be able to recollect what combination of varieties you had used to create it.

It is also important that we always save enough pollen from a good male plant. If our new hybrid is for some reason a disappointment, then it is always handy to be to take a step back as a grower and use the original pollen to fertilize a different female marijuana variety. Only with such a well-organised way of

working can we reduce the number of crossing that go wrong and increase our chances of success!

A male plant absolutely does not have to be huge in dimensions. A small male plant, as it happens, can produce enough pollen to fertilize a good number of females. When you have a limited space to work with, you can also choose to take cuttings from a male plant. These cuttings are then placed in a small box and set to bloom by covering them each evening with opaque plastic, for

example. Doing this will bring the male clones into bloom much earlier (for example, in July). The big advantage of this is that the male plants can pollinate as much as they want, the surrounding females (that are getting the normal amount of light) still show no sign of blooming and carry on growing with no danger. This is why I would firmly recommend this method for the beginner outdoor grower, since small mistakes in which small amounts of pollen are released are not immediately and mercilessly punished (by way of a trashed harvest).

We can adapt the above techniques and choose the best developed female plants to take cuttings from and put these under lamps (with a 12-hour cycle) with the male cuttings. When we get female and male clones flowering, they can fertilize each other and give us more than enough seeds.

To come back once more to the male clones. The biggest advantage of male clones is that you can set them to bloom nice and early. It goes without saying that the male clones, since they take up so little room, can easily be planted with other male clones of other varieties in a single, small space. It is of course much easier to, for example, put five varieties of male clones into bloom than it would be to put five large, fully grown male plants. In addition there is the advantage when raising five males clones each of a different strain that the creation of new hybrids proceeds much more easily. Of course you have to take care not to mix the pollen from the different males. Usually this is not a problem since each variety has its own specific bloom period. In short, the male plants are unlikely to bloom at the same time and so the chance of the pollens becoming mixed up is small.

Once we have taken enough clones from the large male plants we can in principle get rid of them, since the clones will give us more than enough pollen.

Most outdoor growers are not exactly champing at the bit to raise male plants, in fact most would be happy to see them consigned to the deepest pits of hell with no hope of parole. Which is actually a

shame, because a well-developed male plant to some growers (especially the real fanatics) is a treasure to be cherished. Male plants, especially well-developed ones, are much more rare than most growers think. Whenever I hear from fellow growers that they are about to destroy all their male plants, I usually try and beg a clone or two from them first, so that I am assured of getting my hands on yet another new variety. The nice thing about this growing practice is that we can make cross fertilizations that are normally nowhere to be had. That's one thing that makes cross breeding hemp varieties so special, as you never know in advance what sort of flower heads your new variety of females are going to deliver at the end. It was in such a way that I once crossed a number of breeds to create an outdoor variety the female plant of which needed hardly any time to in bloom to create really good flower heads. What's more, this variety was already in bloom in the third week of August and that meant that eventually the flower heads were literally bulging with THC threads!

I personally save pollen from male plants mainly for experimenting with. What could be more satisfying than putting together the ideal outdoor variety that fulfils all your desires in a weed? I'm a big fan of short blooming plants that produce qualitatively good buds and preferably reach a pretty good size. I have also once or twice grown plants on my balcony, in which case I prefer to choose a small, compact plant that grows with a strong stem and side branches. In this way the plant can better withstand strong gusts of wind, something that you can be troubled with much earlier in the year when growing on a balcony.

I should add here that making cross fertilized hybrids yourself can also lead to disappointment. It has happened to me too: you think that finally you have created some sort of super variety for outdoor growing and then she goes and needs ten weeks in bloom. A small calculation will quickly show that if the plants only come into bloom in early September then at the very earliest it is going to be mid-November before they're ready to harvest. If you are not in a position to use a warmed greenhouse then we can best forget all about raising such a long-blooming variety.

One other reason why growers sometimes want to save pollen is to make a cross breed that grows well in the wild, with no overly-high expectations of it and that can just be left behind to grow unobtrusively. In addition, for me there is the important motive of pure curiosity. It is of course every time a surprise to see what the new cross-breed is going to give us next season. A little bit of experimentation can never do any harm, and who knows what kind of super-cross we might come up with!

In the next article I'll be paying all my attention to a method with which we can raise the rather longer blooming varieties, even in our sometimes dreary climate. What we have to do and how we can make it work, I'll reveal in the next issue.



In this photo we can clearly see that the anthers have burst open. The pollen is already on the leaves.



Sometimes I pinch off the anthers when they are nearly ripe and put them in a plastic bag. If you do this, make sure everything is good and dry and the pollen will work wonders.

By: Weckels, the grow specialist from Atami

Making Nederhash with the Ice-o-lator



Once we have stuck the whisks through the holes in the plank and clicked them into the mixer, the mixer will be easier to keep in place while it works.



We fill the bucket with trim waste, then we fill the bucket half full with water and finally, spread ice cubes on top.



Once we have allowed the trim waste to become nicely soaked, we put the plank with the mixer back on top of the bucket and we're ready to begin!

How do we make Nederhash? In this issue, I am going to tell you exactly how in detail you can make a superb quality hashish with the aid of just water, ice and an Ice-o-lator. There is no better method than this for making such excellent hash. The quality is so excellent that it is no exaggeration to describe it as one of the best in the world.

This is also one of the reasons why so many Dutch coffee shops jump at the chance to get hold of an expensive, exclusive hash of this sort. The reason why the price of Ice-o-lator hash is so high is due to the fact that the whole process of making it is so work-intensive. I once spent a good two hours just to end up with a small lump of a few grams. However, the quality of it was so good, it is quite understandable why so many growers do have a go.

The reason why the quality of nederhash is so good is that, with this method making it at least, only the purest THC crystals are kept. When in the past we used an apparatus like the Pollinator, although the quality was good, there tended to be – especially with lengthy operation of the hash maker – fine, pulverised leaf material also making it through the sieve. This problem is not a consideration when using the Ice-o-lator, since everything that is not THC crystal simply remains floating in the bucket and never makes it to the first sieve bag.

The THC crystals once they are in a frozen form are nice and heavy compared with leaf material, and it is their weight that draws them through the first sieve bag, where they eventually accumulate in a very fine sieve. It is therefore a very simple principle, but you can well imagine just how pure a hash this method makes.

Of course it is important that we start out with a fine quality trim waste, one in which the small leaves and buds are

richly bedecked with a thick layer of THC crystals. This trim waste is what's left after manicuring indoor-grown buds, and is often simply thrown away by many growers or left to rot on the compost heap. They would be much better off just giving it to a grower who has developed the making of top quality nederhash into a nice little hobby.

For that matter, there are also very good results to be had using the trim waste from weed grown outdoors too. Especially since outdoor growing often creates a lot of small buds (from off the lowest branches) that can be harvested, and which are excellent for using in an Ice-o-lator. When we are doing so, it is important to make sure that these little buds are well chopped up, so that the THC crystals easily shake loose during the whole process.

So, in order to end up with a great quality nederhash, first of all we need to accumulate the necessary trim waste. Before we can actually get down to work we need first to make sure that this trim waste is well and truly chopped finely (for example with scissors). In this way the crystals will more easily drop free from the waste at the moment that they freeze.

Once the trim waste is good and fine, we put it in the freezer so that it is ready to use the moment we get hold of the Ice-o-lator. We also freeze a load of ice cubes in advance (preferably a good quality), where we can also stick a few cooling bags or blocks as well.

But before we get underway, let me tell you a little about the Ice-o-lator itself. The Ice-o-lator consists of a large bucket (with a 20 to 25 litre capacity), two sieve bags (a rough one and a very fine one), a mixer and a plank.

The first thing we do is to suspend the sieve bags in the bucket, before filling

this with cold water. If we were to fill the bucket first with water and then try and suspend the bags, then we'd find ourselves with a pretty difficult task, since air gets trapped under the sieve bags and is very difficult to get out, and which makes them bob around in the bucket. As a result the mixer would not be able to turn properly, and it can easily tear the

finest sieve. Once the sieves are hanging down nicely, we fold the edge of the bags over the bucket and pull their cord good and tight. This is of great importance, since if the rough sieve bag is not well enough secured to the edge of the bucket, then trim waste can get into the mass of crystals that are accumulating in the fine sieve bag. If this happens then we have to start all over again from the beginning, and that ensures a whole heap of hassle, annoyance and time wasted.

Once the sieve bags are hanging securely in the bucket, first we take the trim waste straight out of the freezer and throw it into the roughest sieve bag. For an Ice-o-lator of normal format we use about 200 to 300 grams of trim waste each time. Once the trim waste is in the roughest sieve bag, we fill the bucket with water that is as cold as possible. We fill the bucket to around half way with water, since there are also ice cubes and cooler packs going into the bucket too (to keep the water temperature as low as possible), which will raise the level of the water. Many hash makers do not take account of this, leading of course to the bucket overflowing and thus to another pile of trouble. It is also for the same reason advisable to lay a few towels around the edge of the bucket. We are always bound to spill some of the water anyway, and since this has been turned brown by the trim waste and has attached to it a rather

By scrunching and kneading the hash ball we break up the crystals and in doing so release the hash oil, the nederhash will get ever darker in colour and come to smell (for its lovers) divine.



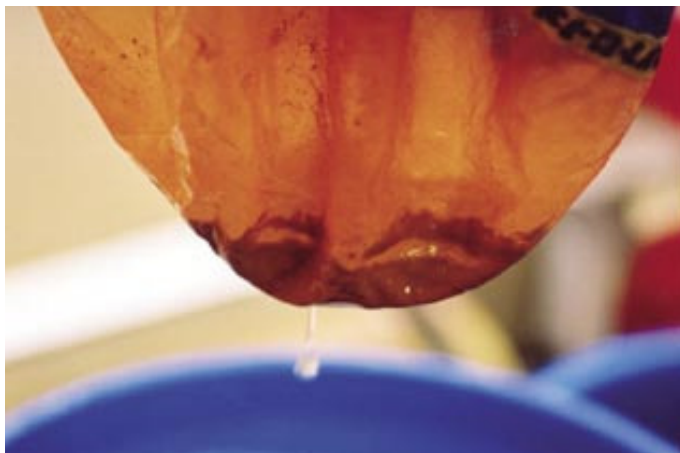
After a considerable amount of churning, the water changes in to a green slurry, which we don't throw away but can save and use as an excellent fertilizer for our marihuana plants.

sieve bags now that these are not sitting snugly against the side of the bucket any more but bobbling against the mixer and its whisks. If this happens, it can turn into a pretty expensive mistake, since the sieve bags are one of the dearest parts of the whole Ice-o-lator set up. The sieve bags are of an unusually good and fine quality – they have to be or they would not be able to catch the THC crystals.

To come back to the hanging of the bags in the bucket, we first suspend the very finest sieve bag in the bucket, then the rougher one. The sieve bags have to hang straight down, so that they are given the optimum amount of space and the THC crystals can easily fall to the bottom. The THC crystals will in a later stage of the process eventually be left behind in the



Once we have let the rough sieve bag become empty for the first time, we take out the trim waste and put this into a tub for convenience. Then we freeze it once again.



Once we have removed the trim waste and the rough sieve bag from the bucket, we let the water in the fine sieve bag slowly drain out.



On the outside we can clearly see the mass of crystals.

In total I run the mixer, with pauses (every 15 to 20 minutes) of about 5 minutes, for a good one and half hours.

distinctive odour, believe me, you'll not want it sloshing all over your floor.

Once we have filled the bucket with water, make sure that the trim waste is well and truly soaked, which will turn it into a nice slurry. It is vital that we keep the water as cold as possible, the ideal temperature being between 3 and 5 °C. In order to create this optimal temperature we use the ice cubes and cooler blocks we previously froze in the deep freeze to make the water as cold as we need. I place the cooling elements between the outer sieve bag (on the outside) and the inside of the bucket. Take care that they stay in their place so that they do not push the sieve bags against the whisks of the mixer. The ice cubes are spread among the trim waste, and since these melt they can not do any damage. I usually let the ice cubes melt first and mix in with the trim waste before I proceed, which takes in total about 10 minutes.

Before we let the mixer start its work, we first have to make sure that this is positioned so that the whisks can turn without restriction. The best way of ensuring this is to bore two holes through a plank and push the arms of the whisks through them. Then we click the whisks in place in the mixer and we can begin. The plank holds the mixer in its place

and thereby also balanced. I used to also bore holes in the lid of the bucket, but this had the drawback that the whisks tended to whirl at a slant, which meant they easily got tangled up with the sieve bags. Besides this damaging the sieves, it could also easily make the mixer overheat.

Once the mixer is whirling, the whisks make sure that the trim waste remains in motion, which in turn means the THC crystals can more easily fall loose and to the bottom of the bags. These THC crystals pass through the rough sieve and are caught in the finest sieve, which we then just have to allow the water to drain from.

We do not let the mixer do all its work in one go, but turn it off after 15 to 20 minutes, so that the water comes to rest and give the crystals the chance to fall to the bottom. This also has the advantage of preventing the mixer from overheating.

In total I run the mixer, with pauses (every 15 to 20 minutes) of about 5 minutes, for a good one and half hours. Once you have let the mixer run for this long and turned it off, we let the water stand for about a quarter of an hour (so that all the crystals have sunk to the bottom). We then remove the mixer and the plank, so that we can easily remove the sieve bag (which

contains the trim waste) from the bucket. We lift the rough sieve bag carefully up and let the water drain out. Once the water is out of the sieve, we place the sieve and its contents to one side.

We do not throw it away, but freeze it again once more, so that we can put it through the process for a second time. I have sometimes had trim waste in which the crystals were so firmly stuck to the leaves and small buds that they were hard to get out. After I had re-frozen them and put them through the whole process a second time, I noticed that the second time, a lot more crystals had been shaken from the leaves, and they were of outstanding quality too.

Once we have put the rough sieve bag to one side and put its trim waste contents back into the freezer, we take the finest sieve bag out of the bucket and let the water drain out of this too. This will take a bit longer, since the sieve is so much finer, which makes it harder for the water to pass through. In any case, do not try to speed up the leaking away of the water by squeezing the bag. If you do this, the water with the floating THC crystals in it will be forced up, which will spread the THC crystals all over the sieve bag where



With the aid of a small spoon we scrape the mass of crystals together. This is much easier than trying to do it with our fingers.

it will stick. Once this has happened, it is almost impossible to get the crystals out of the bag.

We therefore let the water drain out in its own time. One method we can use to speed this drainage up a little bit is to grasp the sieve bag in two hands and to repeatedly rock it with our hands, gently moving first the right and then the left hand up and down. Doing this will make the mass of crystals move on the bottom of the sieve bag from left to right, which will give the water more openings in the sieve through which it can seep.

Once the water has drained away, we fold the sieve bag in half, so that the mass of crystals is surrounded by gauze (from the sieve). Now we lie the gauze between a thick layer of serviettes or towels and stand on top of it. By the weight of us pressing it, the rest of the water is squeezed out of the sieve bag and so out of the crystal mass too, so that finally there is nothing left in the sieve bag except a brown substance, the crystal mass. This pure blob of THC crystals can most easily be removed from the sieve with the help of a small spoon. It is certainly easier than doing it with your hands.

There is a certain art to squeezing the quantity of scraped and spooned THC crystals into a ball. Especially in the beginning it looks as if it is not going to work and will merely be another exercise in frustration. This is a fair assumption, since the temperature of the THC crystals is much too low for them to be able to start sticking together. It is far better to start by placing the THC crystals on a plate, so that the temperature of the crystals rises so they stick to each other better and we can form them into a single ball more easily. We can also stick the plate in the sun briefly, or above a radiator.

While I am letting the mass of crystals rise to a decent temperature, I tip the bucket of water onto my other marihuana plants. The brown and sometimes even green-coloured water is an outstandingly good fertilizer for marihuana plants; they are crazy about it!

Once we have emptied the bucket, we can start again from the beginning. I personally find the work most pleasant when we fill the bucket again with cold water than if we have to put the sieve bags back into the same water (from the



Never let the hash crystals stand too long in the sun (or on central heating), or the accumulation of crystals will dry out too much and then it will be hard to press them into a ball.



in doing so release the hash oil, the nederhash will get ever darker in colour and come to smell (for its lovers) divine. I repeat this kneading of the hash ball several times, and in this way make sure that pretty much all the crystals are broken up, and the quality becomes exceptional.



With some varieties of hash, it can be impossible to knead the mass of crystals into a single ball. Sometimes a plastic bag (or cellophane wrapper) bring about a change.

previous time). Filling the bucket afresh, having first hung the sieve bags in it, has the big advantage that there will be no air pockets under the bags.

Once the sieve bags are again hung in the bucket and this has been filled again with cold water and ice, we take the sack of trim waste back out of the freezer and empty it back into the sieve bag, and the whole process can be done again.

When we have the mixer turning again, make sure to keep a close eye on the mass of crystals that you placed on a plate in the sun or over a radiator; the crystals can dry out and/or discolour very quickly. If the crystals are allowed to dry out too much it can be a hell of a job getting them to stick together into a single ball, and if it happens you are best off adding a little moisture back to them so that you have a second chance at it.

By scrunching and kneading the hash ball we break up the crystals and

work has gone into producing it. In addition, drying the hash balls properly has the advantage that we can then store them for long periods of time. Since the quality is so extraordinarily good that we need just a small amount to roll a right royal joint with, it is handy if we can store our nederhash without any worries.



Here is the eventual end product. Although the nederhash balls shows a number of cracks from the drying process, the quality is still fantastic!

The sieve bags are of an unusually good and fine quality – they have to be or they would not be able to catch the THC crystals

Once you have kneaded a lovely, round ball of nederhash, place this in the freezer for a few hours. By freezing the ball of nederhash any final traces of water are forced out and remain on the outer surface as a layer of ice. Once we take the ball out of the freezer, this ice can be easily wiped away and we will have removed pretty much all the moisture from the hash ball.

It is still very important to leave the hash ball in peace to continue to dry out further at its own pace, in order for the hash to develop a good taste – plus it will also smoke more smoothly. Never stick the hash balls straight into a plastic bag as the chances of condensation are still high, and if this happens, then the risk of mould (yes, the hash balls can go mouldy) is considerably increased.

Drying out the nederhash balls completely is of great importance, as nederhash that has not been properly dried is anything but a nice smoke, and that would be a crying shame if we consider how much

During the drying of the balls of nederhash, you will notice that the hash pretty soon begins to crack as it dries out. It is important that we continue to keep squishing and kneading the ball into a round shape, as long as there are still cracks to be seen. If we do not, then the hash also dries out in the inside and eventually the ball will fall apart.

Over a period of use the water will cease to dribble out of the sieve bag, or it will seem to take an eternity before it is finished. At a certain moment the water may seem to have stopped coming out, especially when we use the finest bags, and be taking forever. To prevent this it is important that you clean the sieve bags well with alcohol. This is available at every pharmacy and as far as I know it is the only substance that will get rid of the deposits of hash. Most growers use alcohol to clean their trimming shears and other tools during harvest, when they can often become coated with hash. This is also the reason that we use alcohol

to regularly clean our sieve bags with alcohol. It works best when we splash some alcohol on a plate and dip the underside of the sieve bag (where the hash accumulation is) in this. We let the alcohol work its way in, so that the hash deposit is well worked loose. Once this has happened, we can rinse the sieve well in warm water. Do this very carefully as we do not want to face the consequences of next time, and the near 100% alcohol coming into contact with the sieve full of crystals!

I hope those of you who love a good piece of hash have enjoyed this article, and I'll finish by wishing all Soft Secrets readers,

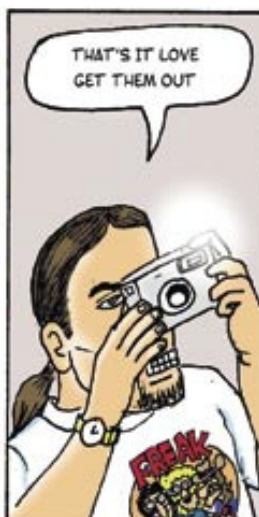


It is important that we clean the sieve bags regularly with alcohol. In this way we can prevent the sieve from becoming blocked so that next time we use it the water will not dribble out.

growers and anyone else in the green business a good new year, and a 2005 that will be rich in blooms!



Menu a la carte: 100% pure Nederhash !



Weckels is a photographer and grow scene reporter for a number of Dutch magazines. He has achieved a certain fame in the Netherlands for his coverage of (indoor and outdoor) weed production, specialising in the documentation of outdoor plantations. Here, Weckels will discuss the growing of marihuana indoors. Take advantage of it!

Text & photography: Weckels, the grow-specialist from Atami



weckels
world of
wonders

Preparation and harvest

In all probability most growers have already got their harvest behind them. Nonetheless I'd like in this article to talk about preparing for the harvesting of marihuana plants. I'll also explain which varieties of weed are best for growing outdoors, along with something about the flowering process. Finally I'll describe a couple of ways in which the potency of the buds can be raised.

If everything has gone according to plan during the entire growing process the plants have grown into lovely, robust bushes. It can't be long before we can expect a good yield of high quality marihuana.

Early- versus late-flowering varieties
The drawback of outdoor growing is that you are generally dependent on the weather during the flowering phase. This is one of the reasons you have to make sure that when you are choosing which strain to of outdoor weed to grow you choose an early-flowering variety.

Late-flowering strains (e.g. skunk and its varieties) that frequently produce big crops when grown indoors, are not really suited to outdoor cultivation. The mistake many beginners make is that they blindly choose a variety they know only from its indoor reputation as one of the 'big producers,' and therefore expect it in all probability it will deliver the goods - in good volume - outdoors too.

Now most of us would not turn our noses up at a prime harvest, it's just that when you try and grow these 'big producers' outdoors, if you get a damp early autumn you can end up with poor yields.

The problem is that these sorts of marihuana plants are almost always late-flowerers. By late-flowering I mean marihuana plants that begin to flower in early-to-mid October. Maybe indoors they can work their magic, but outside they only bring disappointment to a grower. That's why I recommend you don't use late-flowering varieties when you're planning

to grow outdoors.

Useful aids to discovering which plant we're going to use for outdoor growing are the folders from seed retailers. In these folders, details are given by variety on what yield to expect, the beginning and duration of the flowering period. Read them - these details are not printed for nothing; they can make the difference between a successful and disastrous end to the growing season for the outdoor grower.

It is also really important when making your choice to make sure that the ones you plump for are suitable for growing outdoors. The varieties that are suited to outdoor growing come in to bloom around the end of August/early September. These so-called 'early-bloomers' include Early Girl, Double Purple and some strains of Durban.

Because these plants can take advantage of getting more than enough sunlight and warmth to boost the resulting levels of THC, they tend to produce a far better quality of marihuana.

Sun and warmth are of great importance for a good harvest. The sun's rays ensure not only that the dew between the leaves and the flower heads dries off (thereby ensuring that the chances of mould remain low), they also make sure that the stream of sap that flows through the stem and side branches runs nice and smoothly.

The sap stream has played an important role throughout the growing process, but taken on during the flowering process an even greater importance in the development of the flower heads and their



The Double Purple is a member of the early-flowering family of outdoor varieties

eventual quality. That's why an early bloomer can often produce as much marihuana and sometimes more than a plant that belongs more to the 'heavy-yielder' family. This is because the 'heavy-yielders' come into flower too late to be able to profit from the quantity and strength of the sun's rays that the early-bloomers, by contrast, can fully enjoy.

Raising the potency of outdoor weed
To make sure that the marihuana has a soft, sweet taste and at the same time make the flower heads end up with even more potency, we can try a trick or two in the last week before the harvest.

One is to dissolve sugar in warm water, mix this with cold water, and then give it to the plant. For sugar I generally use normal white crystal sugar. I have had my best experiences with this and I'm convinced that the dissolved sugar has a really favourable effect on the quality of the marihuana. Namely, it is sweeter and therefore tastier, while the strength is higher. In one watering can of water I add about 150 to 200 grams of crystal sugar. Make sure that the sugar is well and truly dissolved in the water so that the plant can easily take up the sugar in it.

Another successful trick for raising the potency of the buds is to 'stress' the plant. With this method, a day or two before we're going to harvest, we let the plant know that this is it: the end of the road for her. It's best if she uses the last of her energy on really making those flower heads bloom like never before.

With indoor growing the plant is mostly stressed by withdrawing her water. This can be a very successful technique indoors, but it's less suitable for using with outdoor plants. This is because the water moisture

content of the outdoor girls during the flowering period is very high. If we were to halt giving water, this would give the moulds a free reign. For this reason we can better use another method for outdoor growing.

A successful way of inducing stress is to snip off all the (large) outer leaves. In fact, you can pretty much strip the plant bare. You do that and she going to put all her remaining life force into making her buds. Another advantage of this method is that the air circulation is raised considerably, thereby making the chance of condensation between the flower heads much lower. This is important because we can only harvest the buds when the condensation is off them. If we were to harvest the buds before then, then the air moisture content in the drying cabinet would be too high, and the risk of mould increased.

Furthermore, we can save a lot of work during the harvesting period if all the large leaves have been stripped off already. We have reduced leaf waste and therefore the air moisture in the drying cabinet will not rise so rapidly; large leaves have a lot of moisture in them.

Preparing the harvest

It is also advisable in terms of time and requirements to prepare for the actual harvesting work. To dry the marihuana I have made a special cabinet - let's call it the dryer. To avoid any confusion, this dryer is designed to aid the marihuana to dry in the normal 'hang-and-dry' fashion, and not to dry it as fast as possible as with the so-called 'drying towers'.

To ensure that everything goes smoothly during the harvest it is worth making sure that the drying room or cupboard is a good size. Make sure that everything is working; is the vacuum pump filter scrubbing the air

Late-flowering outdoor varieties stand the best chance of being caught by the first frosts





By adding sugar to the feed water the potency of the buds is boosted, and they take on a sweet taste

as well as it should (so as to be undetectable once expelled into the outside air)? Is the air moisture meter still working? Do the trimming shears have to be sharpened, and so on? Preparing for the harvest in this way ensures not just that it goes as stress-free for you as possible, it also ensures that the whole trimming process goes quicker and smoother because you can devote all your attention to the work itself.

Fixing everything and making sure that the whole process runs on well-oiled wheels will take more time than you had anticipated. It's a drag when the dryer or drying room is already half filled before you discover for example that the air moisture meter (essential to make absolutely sure that mould does not get a foothold in your crop) is not working properly.

Drying

The drying of the marihuana takes between eight and ten days. The total drying days depends on the thickness of the buds; small buds are dry in maybe six days, whereas really monster buds need a good ten to be fully dry. This may sound a tad on the long side, but marihuana is only really marihuana once it's been given time to properly dry. It will have a finer taste than if you've tried to force the moisture out in five days. Too often growers try and speed up the drying process by for example turning up the heating. This is really a

cardinal sin towards the plant; the weed will have a really sharp taste.

The air also plays an important role in the success of the drying process. The atmosphere must remain in good circulation throughout the drying process. In this way the moisture than comes out of the flower heads and leaves and can more easily be sucked up and expelled outside. The air can best be kept in circulation by letting a ventilator or a 'vin' (a ventilator with just one blade) whirl constantly. Take care to not let the ventilator blow directly on the plants' leaves; this can make the flower heads dry out more on one side. This problem is easily preventable by setting the 'vin' on its head, which makes the air blow downwards, where – via the base of the cupboard – it bounces back upwards again. Make sure that you fix the 'vin' that's been set on it head well in place, otherwise it is liable in no time at all to fly loose around the inside of the dryer – with fateful consequences.

If you do choose to dry your buds in a drying room, you can also turn the direction of the ventilator towards a wall for example. In this way too you can avoid the air stream directly blowing only on one side of the flower heads.

In order to help ensure the drying process runs according to plan, the day before I'm due to begin the harvest, I give the cupboard a full turn. In this way I ensure that the when the trimmed buds are hung

up, the temperature and air moisture are at the desired levels.

The desired temperature during the drying process is between 15 and 22°C. As for the air moisture, make sure that this does not rise above 70%. Don't fly into a panic if the temperature goes a degree or two higher or lower. The same too for the air moisture. Some growers begin, for example, to immediately crank up the heating in order to lower the air moisture level. It is far better to first take a look to see if you can discover the cause of the high air moisture content. If there are a large number of large leaves in the drying space, this can raise the air moisture in it very quickly. The bigger leaves are of no interest to dry out and they therefore have no place in your drying room. So be smart and get them out of there as soon as you can. Given that the large leaves contain too little THC, for most growers they have absolutely no value. Nearly all growers as a consequence throw their big leaves straight away.

Actually this is a pity, because the plant has for the entire growing season been stashing away in the leaves all its necessary building materials (and therefore feed materials), and thus the leaves make outstanding fertiliser for the soil you're going to use next year. For this reason it is recommended that you throw all the leaves on a pile in the garden or into the vat in which you plan to grow next season. I'm certain that you will be delighted with the results when you mix a good amount of leaves into the (already used) soil.

The flowering process

In the month of August, and with the early-flowering varieties sometimes even earlier, the leaves begin to wilt a little in the course of the evenings. This has nothing to do with giving them too little water, but are the first signs that the marihuana plant is coming into bloom. The plant begins to flower because the number of hours' daylight is getting shorter. After around a month, the first tiny resin glands (also known as THC-threads because these fine hairs have a high concentration of THC in

them) begin to develop above the buds. These white threads will be visible throughout the rest of the flowering process. At the first signs of these white threads, the time has arrived to start giving special flowering food supplement to the feed water.

A problem here is that in the autumn, showers are quite frequent, whereby the soil in your cement tub or the earth in which your plants are rooted will become soaked with water. Giving the flowering supplement now becomes all-but impossible. The plants have already become so gorged with water that by trying to give them more with flowering supplement would probably do them more harm than good.

Marihuana plants hate really wet ground and it can make them susceptible to root rot. As a solution to too soggy a soil you can cover the surface of the cement tub with agricultural plastic. To



The flowering supplement has a great deal of influence over the size of the buds

avoid the plastic blowing away you can hold it place with stones or bits of wood. Lay the stones and/or wood carefully and not against the main stem of the plant, otherwise you can damage it.

By covering the cement tub you will prevent more rainwater reaching the roots, and thus keep the earth in the tub nice and aerated. This has the great benefit of then being able to be filled up with flowering supplement-enriched feed water, out of which the plant can then extract all the nutrients it needs for an optimal flowering. Flowering supplement is usually more expensive than normal growing nutrient, but it is recommended that you invest the necessities in some. The flowering supplement will contribute considerably to the size of the buds, as well as to their eventual potency, so that the net result on the quality of the marihuana will be well worth it. By using techniques such as light reduction and using flowering feed supplement the buds can be quite amazingly influenced for the bigger. Especially in the beginning it will look as

This how the Durban looked, just before all its large leaves were stripped, according to the 'stress method'



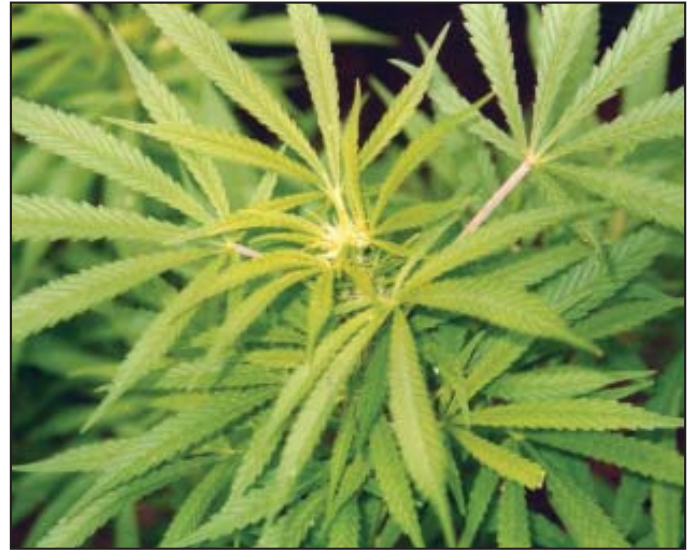


The Durban is stripped completely bare. In such a way we stress the plant into devoting the rest of her energy into making the flower heads

if nothing really wants to hurry itself; small buds pop out all over, but these will develop achingly slowly. But have patience: they will eventually form closely packed-together blooms. The marihuana plant likes to be given plenty of time to develop itself, and indulging it will pay dividends.

Obviously you'll be anxious for it to ripen as quickly as possible, but now is the time to be very patient. Harvesting too soon lowers the yield considerably and the resulting flower heads will be less potent. After all these months of hard work it really is worth going the extra mile and waiting another couple of weeks. This is because these last weeks of the flowering process is when most of the volume and the potency are added.

Despite the beneficial influence of flowering supplement on the size and strength of the buds it is still advisable to stop adding it in the last couple of weeks before the harvest. We do this to ensure that the marihuana has no strange aftertaste. In other words, we give the plant no more fertiliser so that the flower heads are 'pure' and untainted. This is in fact the week in which we give the aforementioned sugar water. This last week is also the one in which we try and stress the plants. Once the flower heads have had a period of time (usually after six-to-eight weeks, depending on the variety) in which to begin to develop their bulk, it is time to keep a careful eye on the buds. When the first resin glands (on the well-developed buds) begin to turn light



The first resin glands (also called THC-threads) are visible and therefore the flowering period has broken out

brown, it's time to start harvesting. To wait any longer is pointless; the large buds will start to separate from each other if we leave the harvest any longer.

The harvest

I always choose to trim the buds 'wet'. Doing so gives them a much lovelier structure and they just look better than if you let them dry out before you trim them. Finally I'll tell you something about the order and manner in which you should set about harvesting. If you have not yet trimmed off the big leaves and taken them away (as per the 'stress' technique), first do this. Ensure in any case - because of their effect on the air moisture level - that these are no longer in the drying space. Take them out, throw them on a pile or throw them back in the cement tub from which they came to fertilise the soil for next year. After having removed the big leaves, first we pluck the buds too small to warrant trimming off their stems and set them to dry out on a sieve. This sieve we place on the very bottom of the drying space. After the small buds have been removed, we can begin to clean up what's left - the beautiful buds. We trim round the buds, removing all

the small leaves left sticking out, so that the buds eventually are nice and round in appearance. When we have done this, the buds are ready for being hung up in the drying cupboard.

The small leaves are still packed with resin glands and so remain of value to us, so we toss them in the sieve too to dry out.

These small buds and leaves - also known as trim waste - we can use to later make hash with. Though still small, the buds and leaves soon make a large heap.

Toss and mix the pile of trim waste regularly so that mould does not form on it.

Further more, it is very important during the drying period to control the temperature and moisture levels. Intervene if needs be, in order to make sure you get a primo quality marihuana.

I hope to have helped you round things off with this article, and to achieve a great harvest. In my next piece I'll give you a report on how to make a very good 'Nederhasj', as we call it - home made hashish - out of the trim waste that you've saved during the harvesting process, using a so-called Pollinator.

By covering the surface of the cement tub with agricultural plastic you can make sure that rainwater does not get in. Now the plant can only get feed water from us.



The small buds and the trim waste we leave to dry in a sieve, which we place in the bottom of the drying cabinet



Soil Pests and Diseases



Twospotted spider mite: *Tetranychus urticae*



"Spider mite destroyer" lady beetle



Minute pirate bug

By LazyStrain

Having looked at 'Outdoor Plant Pests' in the last issue of Soft Secrets UK, this time we shall look briefly at 'Outdoor Soil Pests and Diseases' found within the UK.

The cosmology of soil-life within the British Isles is a subject unto itself. As advanced eco-systems, outdoor soils support a variety of quantum beings and micro-organisms, many of which remain invisible to the naked eye. Whilst the majority of these creatures are in fact beneficial to plant-life, several soil insects and organisms may be considered pests. Telling insect friend from insect foe and harmful mushroom from friendly fungi isn't always easy. Once again the importance of species **classification** and **nomenclature** must be stressed. Likewise, here we will only promote the use of biological and/or ecological methods of control.

Soil Invertebrates

Soil invertebrates have no backbones and can easily burrow into soil substrates. Terrestrial invertebrates thrive within soils that are well-cultivated and full of nutrients.

Common soil pests in the UK include Ants, Beetle Larvae, Chafer Grubs, Leatherjackets, Nematodes, Millipedes, Spider Mites, Weevils and Woodlice. Other pests may include, hornets, wasps and bees, all of which can build nests below ground. **Chafer Grubs** (the larvae of Beetles), **Cutworms** (the larvae of Moth), and **Leatherjackets** (the larvae of Crane Flies), ALL feed upon young roots. The best organic methods of controlling these soil larvae are to remove them by hand and/or by encouraging friendly predators.

In truth, most so-called 'insect pests' do as much GOOD as they do harm, usually serving a dual role as both friends and foes. Even the more ferocious soil invertebrates, like millipedes and nematodes help out in the garden. They improve soil texture breaking down organic debris and control other harmful pests when feeding. It is only once an insect begins to feed directly upon root systems, and when plant-life begins to deteriorate, that soil invertebrate are considered pests.

Soil micro-organisms

Soil micro-organisms are an essential ingredient of any outdoor soil. Soil micro-organisms are so small that millions of microbes can inhabit the surface of a single seed. Soil microbes consist of **bacterium** and **protozoan**, each of which specialises in a specific task. Most are garden friendly. For example, *azotobacter* fix nitrates onto root hairs and soil particles in exchange for plant sugars and residual salts. Some fungi microbes latch onto nematode worms as parasites, whilst *mycorrhizas* fungi release hormones, preventing plant disease and boosting growth.

However, where soil conditions are unhygienic due to the use of old or infected soils and/or a stagnant water supply, harmful bacterium will persist. The use of non-mains water (which is untreated) often poses a serious threat to outdoor soils, since stagnant/untreated water carries a host of anaerobic bacteria. Once irrigated onto outdoor soils these harmful microbes thrive during autumn and spring. Many anaerobic microbes also co-exist alongside primitive alga species, liverworts, mosses and fungi. The presence of which encourages the spread of further diseases and pests.

Perhaps the best known of all microbial diseases (amid cannabiz growers) is *Botrytis* (also called **Bud Rot** or **Grey Mold**). The fungi *Botrytis*, or more correctly its spores, thrive in damp soils where air circulation is poor (especially when plants are over-watered and over-crowded). *Botrytis* spores are foremost attracted to dead organic matter and injured/wounded plant areas. When infected, plant parts first discolour, then wither, then exhibit grey mold.

Soil Fungi

Fungi are strange stuff. Fungi may be sexual or asexual. Soil fungi are the flowering bodies of subterranean spores collectively called *mycelium*. *Mycelium* are made up of many *hyphae*, which when strung together travel across soils sites as *rhizomorphs*. For most of the year these underground spores go unnoticed. However, once the moisture and temperature of a soil reaches an optimum level for a prolonged period of time (usually during autumn or spring), specific spore flower into the fruiting bodies we call mushrooms/toadstools.

parent insect lay eggs below ground. Friendly microbes are working flat out at this stage providing root systems with nitrates and other complex compounds. The harmful bacteria are at this stage clubbing together, or lying dormant, getting warm for the rains of autumn.

Autumn is the time of year that soils really come alive. Soils are wet and warm. Soil pests are out in numbers looking to establish new colonies. Visible fungal spores like *Botrytis* are best removed and burnt. Fungicidal sprays containing benomyl or carbendazim can be used during the early stages of infection- several weeks prior to harvest (this is not organic). Always remember that friendly bacteria prefer free-draining soils with good aeration.

A Note on Earthworms:

The addition of earthworms to outdoor soil sites is old practice. Earthworms burrow into the ground improving both soil drainage and soil aeration. During autumn and spring, worms come up into the soil surface to breakdown organic debris, dragging dead leaves and twigs back down into the ground. Each day an earthworm makes its own weight in worm-casts which contain high traces of N, P, K, and Mg. Earthworms also attract a special type of calcium loving bacterium which fix vitamin B12 into soils. This may improve overall crop yields. Likewise in time, worms cultivate the land, turning heavy soils into smaller particles. Typically, earthworms prefer warmer soils with a pH around 6.5.

After thoughts...

Since in most cases we are dealing with microscopic beings (tiny little creatures whose existence we can barely comprehend), we will more than likely notice the symptoms of damage without ever acknowledging the presence of the diseases or pests. From this perspective, we guess that ignorance is bliss. However, blissful *Botrytis* isn't during harvest time, so as ever, prior knowledge is always the key to success.

Using chemical fungicides and pesticides to treat symptoms, which naturally reoccur, doesn't acknowledge causes. It is all too easy to go to the store, buy a bottle of chemicals, and apply them to a soil without thinking about the process behind it (thousands of people do this every year with relative success). However, with correct management most soil sites can be turned around organically without ever using anything other than common sense. Treating outdoor soils with the same amount of respect as we do outdoor plants is the best place to start...

Perlite granules are an essential addition for making any soil mix more aerated (so that the roots can get sufficient oxygen). But when it is really dry it can cause a lot of irritation to the eyes and air passages. So always make your perlite a little damp before using it!

Text & photos: Weckels

Outdoor growing –indoor blooming (part 1)

In this article we will be taking a look at a completely new form of outdoor/indoor combination growing. The technique involves having the marihuana plants spend their growing period out in the fresh air and, once they are fully grown, being taken indoors to complete their blossoming. Since in this way we are able to create the most ideal conditions for blooming that can be technically achieved, it is a good way of raising really top varieties. What many growers do not appreciate is that when you allow your plants to do some pre-growth outside, once you have brought them indoors they will produce a super quality weed (the buds will be well covered with a thick layer of THC crystal) and in doing so produce a much higher yield. Just how we achieve this will be the subject of this article, and of the following articles.



We first let the seedlings start their pre-growth in small flower pots (minimum 18 to 20 cm high). Make sure that the seedlings are stood in a sunny spot right from the start. This promotes a good development and a compact growth in the plants.



One of the seedlings came under attack at an early stage from slugs. Fortunately, only the uppermost growth shoot was munched. The seedling developed into a double-headed plant.



The same seedling a month later. As you can see the plant was forced to develop a double-headed stem. Plants like this can later, once they have been brought inside for blooming, produce top harvests!



We drill extra holes in the base of the flower pot. In this way we ensure an optimal water drainage and there will also be sufficient oxygen on the underside where the roots are going to be.

Many growers will be asking themselves why we don't just let the plants do their pre-growth indoors, since this is where we'll be bringing them into bloom anyway, right? The answer to this is easy. The climate outdoors, where the living conditions are determined by the strong sunlight and also the wind, is by far the superior climate for selecting the strongest and best indoor varieties. In terms of levels of light, no lamp can match the power of the sun. And thanks too to the wind, the stem of the plant and its attendant side branches can develop themselves into amazing dimensions. Thanks to the strong gusts of wind outdoors the main stem and the branches are forced in all directions to develop strength.

These are the moments at which the outdoor grower can only look on with apprehension. Thanks to the strength of some wind gusts there may well be small rips in the tissue of the plants (especially where the side branches meet the main stem), which in turn stimulate the plant to make new tissue in order to repair the small wounds. This process actually takes place throughout the life cycle of the plant (although during the bloom period the plants will be indoors), and thanks to this process the plant that is grown outdoors can achieve an incredible strong main stem and strong side branches.

These attributes are just what the plant needs if she is going to produce a high yield of bud too. The main stem and the side branches of the plants, the ones we've brought indoors to bloom, must after all be able to support a much

greater weight of flower heads than they as an indoor variety had originally been bred for. When people grow indoors they often use an air fan blowing on their plants to achieve something of the same effect, namely a strengthened stem and side branches. Even with these aids though, it is impossible to create the same conditions as you would get outdoors.

To come back to my earlier point about the ideal amount of light we get from sunlight; the great quantity of light that comes from all sides is ideal for the growing of a thick cover of leaves. What is more, the powerful sun rays create many times more energy reserves in these leaves, which the plant can draw on later when it blooms to ensure the optimum development of its buds.

The sun's rays create an effect whereby the leaves are provided with an ever-increasing quantity of sunlight. Put in another way, the leaves keep being given energy boosts, since every few minutes the sun's rays strongly illuminate the leaves (as the sun emerges from behind a cloud, for instance) only to then fall off again (as the sun goes back behind a cloud). Indoor growers also try and imitate this effect by fitting lamps on a special rail, along which the lamp(s) can move back and forth. In this way the indoor plants also get given a strong dose of light followed by a fall in light level, as the lamp moves along the rail and its light directly illuminates first one plant then the next plant. Despite this ingenious and above all expensive mechanism, it can still in no way compete with the sun!

By giving our marihuana plants all the advantages of a pre-growth in the fresh, sunny outdoors, once these same plants are moved inside for their blossoming they are bound to provide a few surprises. What is more, allowing the plants to pre-grow outside will save you a huge amount of electricity compared with having done it all indoors. Also, this method is less risky, because four or five well-developed and fully-grown plants will often yield just as much end product as a small field of less well developed individuals indoors. Furthermore, the outdoor conditions will provide the ideal selection mechanism to ensure that only the strongest and fittest will survive to make it indoors and the reward of being allowed to bloom.

As for the choice of which variety to raise, there are now boundless opportunities, given that we no longer have to worry about the early blooming marihuana types. After all, we can now take our pick of the very popular indoor varieties, the ones that since they often bloom for eleven weeks produce lovely white buds. These varieties would never be growable as pure outdoor varieties, because they would not be ready to harvest before the end of November. Because of the fact that we are whipping them indoors in good time, before the plants start to produce their bloom hormones, we no longer have to worry about the cold, wet Autumn. In short, the plants can enjoy a nice long growth period and then bask in the best indoor environments that we can provide for them. The plants will not only be grateful for this; they will amply reward us too!

But before we actually go as far as to bring the plants indoors, it is a good idea to make sure that we actually have a suitable place indoors to which we can bring them. And this is far from being as easy as many might sometimes think. When we are also active in growing indoors under artificial light, of course it is not a problem. Then the only thing we need to pay good attention to is the height of the ceiling in which the plants will be brought (that determines the eventual maximum height of the plants), the dimensions of the grow space and the timing schedule. The indoor space also needs to actually be empty at the time you need it and for the whole period that the plants will be indoors.

If you really have no possibility of bringing them indoors and you are dependent on fellow growers, then it is a really good idea to have everything discussed and agreed upon in advance. Your fellow grower is running a certain risk at the moment that the plants are being hauled inside his gaff, given that the whole neighbourhood can enjoy the spectacle. Of course there are always alternatives and the risks can be kept to a minimum; I will not be going in to them here, but I will (in a later article) come back to the issue (once we really are ready to bring the plants indoors). Make sure in any case that you do have access to an indoor space before then. If we fail to take care of this and it starts to look as if the plants are not going to be able to go indoors in time, then you can already book front row seats to your first drama. Real indoor varieties left outdoors almost never produce any decent results since the outdoor growing season is way too short for the bloom time they need.



Once the flower pots have sufficient holes, we can start making preparations for fertilizing the soil mixture.



We pour the soil mix in to a large tub. Then we add lime (in the form of seaweed extract), worm castings, wood ash, perlite, compost made from the remains of hemp plants and bone meal. Then we mix them all thoroughly together.



A wheel barrow is also a good solution for making your soil mix and adding the various fertilisers in. Once it has been well and truly mixed we can start to fill the pots with it.

If we look at what form of growing best suits the circumstances, then the obvious choice is to go for a flower pot with a content of about 20 litres. We deliberately keep our pots on the small side so that later when they have a fully-grown plant in them they can still be relatively easily hauled indoors. What is more, by using a smaller pot, then the plants will remain limited to some extent in the size they will reach. A three-metre high mega-bush might look impressive, but for flowering indoors they are often not best suited.

This is primarily because thanks in part to their immensity they are almost impossible to transport. What is more, you would also need to have access to a grow space with a four-meter high ceiling. This is because you still need to hang your lamps a safe distance above the plants.

The ideal height for our plants in this 'outdoor growing – indoor blooming' experiment is at the highest 1.80 metres. This is about the ideal height too for fitting in a large rental van for

transporting, and this height is also about right for most grow spaces too. As for other dimensions, the plants can be as fat and bushy as you like. In fact, such a well-developed plant is actually essential if you are going to eventually get a big harvest.

Once we have got our hands on the right sized growing pots, the first thing we do is to bore a few extra holes in their bases. In this way we can ensure both that they get an optimal water drainage and that the underside of the pot where the roots are concentrated gets sufficient oxygen.

As my soil mixture I use a medium mix; a mixture of soil to which all kinds of fertilisers have been added. I also choose to add some additional perlite, worm castings, lime (in the form of seaweed extract), compost made from the remains of hemp plants, wood ash and just a tiny amount of blood meal.

To a single 20 litre pot I add two dessertspoons (or large soup spoons) of lime, one dessertspoon of blood meal, two litres of worm castings, two litres of compost made from the remains of hemp plants, three litres of perlite and about two litres of wood ash. Mix all these thoroughly together, for example in a large bucket or alternatively in a wheel barrow. Now we add the medium mix that we have put together to each (20 litre) flower pot so that it is filled completely to within 2 cm of its rim. By stopping here we leave enough space so that the feed water does not run over the edge when we water the plants.

Before we fill the flower pot with the soil mixture, its additives all well mixed through it, give the mix a final last churn so that it is nice and airy and richly provided with all the important raw materials our plants will need. This final mix is best done in a large tub or wheel barrow.

Once the pots have been filled with our soil mix then we can choose a variety of marihuana to grow in it. Of course we could just choose to grow the same variety that we have always grown outdoors. These varieties too will produce super yields if they are brought in to ideal blooming conditions indoors. But to do so would be a shame. Since the plants are going to be finished off indoors anyway, it is far more interesting to try and raise a real indoor variety. In this way we can get to work nicely and at the same time get acquainted with a new variety as an alternative to the tried and trusted ones we've become familiar with. This is a great way for the outdoor grower to get to quickly know the pleasures of the indoor varieties!

Personally, when growing in this fashion I have used the White Shark variety. This plant variety produced by the Greenhouse has, thanks to her wonderful white buds (rich in THC), her ravishing smell and great high, produced many great surprises for me.

The number of plants we choose to set to growing in the open air is of course dependent on the size of the indoor



The first six flower pots are filled with a richly-fertilised soil mixture. Now we can plant the already somewhat developed seedlings to them.

space that will be at their disposal later on when we bring them in to bloom. Try and picture in your mind what a well developed plant will look like when it is about 1.50 metres high and about the same in girth, and see how much space that will take up. Four of five of these pumped up beauties will be more than enough to fill a reasonably sized indoor space pretty snugly. Some growers will have smaller spaces at their disposal and may have to be happy with just a single well developed plant. Of course, there are also plenty of growers who are in the position to be able to just go out a fill a whole field with them, but for the majority of us that is never going to be the case.

To keep pressing on briefly with this issue of numbers, once we have finally decided on, say, four plants to bring inside for final blooming, it is still advisable to allow more than four to



A couple of days before the re-potting we give the young plants some room temperature water (about 21°C) with some root stimulator added to it. We place the young plants in a dish so that they can soak up the water from below. This promotes the root growth outwards (out of the pot) considerably.



In order to re-pot the young plants, just prior to the operation we give them a good dash of water. Then we hold the pot upside down and tap softly against the sides. The whole sod comes free easily.



In this photo, nearly all the plants have been re-potted into their final destination, namely a flower pot with a volume of about 20 litres. We care for them well, thanks to which they will develop into lovely, compact plants.



The plants are beginning to develop rapidly.



The same plants a couple of weeks later. I shift the pots around (with the plants in them) during the day. In this way they can get full sunlight all day long.

undertake pre-growth outside. Between the plants that we have raised from seed there are bound to be differences, variations that make them more or less well suited to taking the trip indoors. So perhaps one plant will grow much quicker than the other, while another plant will develop much more in girth than the others. We should also pay attention in advance to the fact that there will be a number of males among the plants we raise. It is usually safe to assume that half of the plants you raise from seed will be males. In stating this of course I am ignoring the case of the 100% female seeds. But the vagaries of genetic fate may even see you end up with perhaps eight out of ten plants turning out to be male. Bearing all this in mind I usually go for a good ten to fifteen plants. By having as many as this, we can be absolutely sure that we will get sufficient female plants, and we will be able to make a selection of the best developed ones to boot.

If we then choose to remove the male plants, then we will not be able to fill their spaces with fresh plants. This is because the seed has to be germinated and will have too great a time penalty to be able to catch up with the ones already in pots. Of course, we could take clones from the remaining females. The drawback here is that these clones too still have too great a distance to make up to catch the existing mothers that were raised from seed.

What's more, it is far more interesting to raise a number of mothers from different varieties of seed and then let them bloom, so that you can observe the differences during the blooming period in the appearance of their buds and use this as your selection criteria. A plant that looks great in terms of size, leaf coverage and suchlike is not always guaranteed to also follow through and produce loads of lovely, white buds. Sometimes it is the case that you have two mother plants that both produce near enough the same weed in terms of appearance and taste, but where one produces a heck of a lot more of it than the other does. Especially since it the combination of appearance, the smell, the high and the taste as well as the total yield and the price you can get (if selling it) that make it all worth while for the grower, then growing and letting bloom a number of different mother plants is a great way for any grower to work out some of these mysteries of nature. It is by experiments such as this that we can find and use our favourite mother plants to get the golden results we want.

Since we do not need any giant plants, as these would not be best suited to blooming indoors, then it is not necessary to go starting our grow in February or March. We can better wait until the beginning of April to germinate our seeds, so that they can be started off in their pots in mid-April. Should it still be too cold by mid-April, then we can best just put the young seedlings into smaller pots to start with and keep them on the windowsill. As long as the plants get their three months in the open air and as long as the sun has had a reasonable chance to do its job, then the plants can not fail to develop sufficiently and reach the required size (not higher than 1.80 metres and nicely developed in girth).

Once we have allowed the seeds to germinate and we have put them to start with into small pots, the young seedlings can start to develop. These small pots should have a minimum height of 18 to 20 cm, so that the tap root (main root) is not hindered in its growth.

It is of course important that the plants are stood in a sunny spot. In doing so they will develop much quicker. What's more, a shadow-filled spot is not suitable because in one, we are not giving the plants that extra *something*, that something they are going to need once they are indoors if they are going to produce that great harvest. The young seedlings will just shoot up like rockets if they are put in a shadowy spot (in search of more light), and thanks to that will never develop into well-developed plants.

Once we have placed the pots in a nice, sunny spot, the seedlings begin to grow. At this stage we give them very little water in order to stimulate them to set off themselves to find it. This little bit of gentle plant abuse works a treat, provided that you keep a close eye on things. If it happens that April is especially warm (it happens) and the sun is beating down on your little seedlings, then we do need to give them enough water. Often the weather at this time of year is still wet and damp – something that will be to the benefit of our leaf cover growth and development. It is not for nothing

that indoor marihuana growers use professional air humidifiers in order to let the plants to grow as fast as possible.

I hope I have given you a bit of a picture in this article of the advantages of growing outdoors and bringing the plants in to bloom. In the coming articles I will be looking at the experiment step by step. In the very next article I will be giving a lot of attention to how we get our mother plants to grow to roughly the same height. How we can do this and why it is a good thing you can find out in the next edition of Soft Secrets!



The well-fertilised soil mixture and the abundant sunlight soon make sure that the plants develop into lovely, compact adults.



Here are all the plants once more, in a row. There are obvious differences between them, in size, in compactness and circumference. This is because these White Shark plant did not come into the world as clones, but were raised from different seeds.

By Weckels

Outdoor growing – indoor blooming (part 2)

The training, pruning and topping of the plants

In this article I will be turning my attention to important issues such as the training, pruning and topping of marihuana plants. Although perhaps to most growers these will sound like straight forward issues, such things are never as easy as they might sound. Whenever we begin talking about doing things like topping plants and / or trimming away excess growth, then there is the chance that we can do irrecoverable damage to the plant. Removing the wrong side branch and / or topping the plant at too early a stage are both actions that can never be reversed or repaired. In answer to such questions as at what point we need to take good care and how we can best go about these activities, I hope all will soon be revealed.



This plant has for a start been raised in the wrong place. The plant shot up like a rocket and could only start to develop properly once it had reached some sun. This plant was rejected as candidate for letting bloom indoors as a result.

In this issue we will be going further with our look at plants in our experiment that we have allowed to grow outdoors and then allowing them to bloom indoors. For the success of this experiment the plants preferably need to be about the same height and have roughly the same dimensions, before they are moved indoors. For this reason we give the plants a little help to achieve this, by training the side branches of the plants, by pruning away any side branches that are too thin and by removing the top-most growing tips of the plants. By doing this we make sure that the plants end up with the same height and size as each other, and thereby give them a better chance of their blossoming indoors proceeding more easily. When you start out with one plant bigger than the other (even if it is just by 30 centimetres), then it is almost impossible to position the lamps at a reasonable height above the plants. Poorly growing buds (thanks to too little light) and an unnecessarily large number of burnt spots are the usual consequences. Problems such as these can largely be avoided by the simple expedient of keeping the plants more or less the same height. When we have raised the plants from clones this is quite an easy thing to achieve. After all, clones are from the same mother plant and as a result usually have more or less identical growth and blooming patterns. When we raise plants from a number of different mother plants all from different seeds, then they often display considerable differences between them in their growth phase and (once we bring them indoors for blossoming) also during bloom period.

It is not particularly easy to get different mother plants to mature at the same



This is how the plants looked before their side branches were tensioned from below and before the top-most grow shoot was removed. Neither too had the weak side branches yet been removed.

rate and in the same shape as each other. However, what we can do to help is make sure during our preparations that the mother plants are raised under exactly the same circumstances. So we need to make sure to start with that the plants are all started in the same sized pots and are given exactly the same proportions and quantities of nutrients. Furthermore it is also best if the various mother plants are all grown in the same location outdoors. If we were to allow one plant to grow in full sunlight and another with only half that amount of direct light, try as you might as a grower, but the mother plants are very unlikely to end up the same in height and

dimension. Similarly, a planting them in a very windy spot will ensure that the plants will choose to remain small and compact in their development. This is in contrast to plants that are raised in a more protected environment, behind a sturdy fence for example. In addition there are often differences between plants thanks to the habits of the people looking after them. So for instance the growers who devote much more attention to their plants are usually the ones who achieve the best results come harvest. This factor is especially important when we let a fellow grower look after some or all of our plants, perhaps because you've already got another four grows on the go and just don't have the space at the moment. Or in Holland when we want to keep under the legally tolerated number of four plants, we might choose to send a number of plants to be 'fostered' by a colleague grower. After all, if we were to choose to bring, say, five plants indoors

to let bloom and on top of that we want the very best mother plants, then you can easily be looking at having to raise 10 or 15 plants to choose from among. Should we want to lower the riskiness of such a large number then our only option is to let the mother plants (pre) grow in a number of different locations.

Once we have provided the plants with the same fertilizers, allowed them to grow in the same sized pots – preferably in the same sunny spot outdoors, the next thing to do is simply keep a close eye on the seedlings, all aspects of them. Observe them really well; maybe the first thing that catches your attention is that just in the thickness of the stems of the seedlings there is already a large amount of variety. One seedling has a sturdy stem and is growing firmly out of the ground, whilst another has a very thin stem that is a good two times longer than the other seedling, but which dangles all over the place. When the weather now starts to blow a bit you will soon see that it is the same seedling that is bent over on to its side.

Now we can choose to immediately remove this poorly developing seedling (the one with the really thin stem) and just pop a different new one in its place, even though it is sometimes best to just wait and see for a while. Maybe one seedling has just had a bit more luck than the other one, but this does not mean that the less good looking seedling will necessarily develop into a poor mother plant. It often happens that a seedling gets nibbled on by a snail, for example, which can do great damage to a young plant. It also is not unheard of for a young seedling to get partially



A lot of sun and good care will ensure that the plants will develop nice and compactly.



Even though the plants look lovely, the grow shoots on the side branches have not yet reached the best height. It's time that we gave the plant a helping hand.



In this photo you can clearly see how the side branch is being held down by the tensioned string. In this way we stimulate the plant to develop the width of her side branches.

burnt, because the grower planted it in a sunny moment or watered it in an unfortunate way (by also making the seedling wet with water). To the grower the badly damaged seedling looks like a lost case, but young seedlings can repair themselves at an amazing rate, sometimes even developing themselves two main stems. These double headed plants as I call them are ideal for encouraging to develop nicely and broadly. They pretty much do this automatically themselves anyway, because they cannot immediately grow upwards. These plants, once they have been brought indoors to bloom, really do make for a happy grower. The double headed plants frequently produce top harvests, because they can better spread the weight of the flower heads much better than their single headed sisters that only have one main stem at their disposal. The plant also keeps itself much better in balance and that is something we will notice as a positive thing too.

A well developed plant with a single stem risks falling over should the soil in the pot be allowed to get too dry for example. Big plants use a heck of a lot of water and it regularly happens that the soil is allowed to dry out and therefore the weight in the pot is no longer enough to provide enough ballast to keep the plant right way up. In short, the weight in the crown (this later plays a crucial role once the flower heads begin to develop) is now greater than the weight in the flower pot with its (too dry) soil. This is a problem that will not so easily arise with a two headed plant.

Training their side branches

When a plant has been allowed to develop her side branches nicely outwards, this can offer a big advantage in that she will eventually produce a lot more growth shoots on these side branches as well. Given the fact that these growth shoots can turn into lovely white buds during the flowering period, then you can see why nice, fat plants can be such a better proposition than their skinnier counterparts. Well developed plants also happen to produce many more buds as well, which are in addition of much higher quality, and so all in all you end up with a bigger, better harvest per plant.

It will certainly come to your notice that with one plant the side branches will grow much more in height, whilst another plant will have side branches that develop more in width. But even so we can help the former, skinny plant to develop more width-ways. By tying down the side branches of a high-growing plant with string they will be drawn further apart from each other and thus be stimulated to develop more in width. In contrast to the experiment I described previously, we do not fasten the strings to tent pegs or stakes in the ground, but rather we tie-off the tips of the strings at the bottom of the main stem. In this way we will still be able to easily move the pots around and they will be able to get the sun at all times of the day. This is all to the benefit of the growth and so essential to the good development of the plants.



Here it is clear to see which side branches have been put under downward tension. Thanks to this, eventually the plant will develop a fair bit better.



Just a couple of weeks later, but the plant is developing noticeably better. Note especially how well the plant has developed in width.



The knot right under the removed growth shoot from the top of the plant has a lot to endure (thanks to all those tensioned strings pulling her branches down). With the aid of some more string I tried to prevent further tearing at the knot where the side branch met the main stem.



Watch out well for gusts of wind. The plants easily fall over (especially when the soil in the tubs has dried out a bit at the end of the day) and they can be irreparably damaged as a result.



As well as tensioning the side branches downwards, we also remove the top-most growth shoot. In this way the plants will all end up reaching the same height.



When the removal of the top growth shoot (also called topping the plant) does not go according to plan and the plant continues to leak feed sap, we can use a clothes peg to pinch shut the wound (and so too the sap stream) shut. The wound will then heal quickly.



The growth shoots on the poorly developed branches, the ones we trimmed off, are nicely recycled as clones. We do still have to separate out the male plants from the females. I usually let the clones take root outside before I bring them in and put them under a lamp to bloom.



We need to take good care that the string that we attached to the bottom of the stem (that we keep the side branches tensioned downwards with) is not allowed to cut into the bark.



Here is the result of a plant which we have nicely trained the side branches and removed the top growth shoot. Nearly all shoots are now growing at the same height and can therefore fit nicely (at a later stage) under their lamps.

Once we have tensioned the side branches downwards with the aid of string and tied the ends of these strings to the bottom of the stem, then we need to keep a close eye on the plants. If the tension on the side branches is too great then they risk tearing at the knots. The knot of the plant is the point where the branch meets the main stem. If even small tears develop at the knots on the main stem it can be fatal for the whole plant. A small tear often quickly becomes a bigger one (all it takes is a sudden gust of wind), thanks to which it can spread and several branches can be torn off in one go. Once this has happened then the damage for this plant that was destined to have bloomed inside is no longer recoverable and the plant is removed from the experiment.

Happily, marihuana plants are one the most mysterious of all plants and they possess all kinds of qualities that have left many growers scratching their heads in amazement. Believe it or not, but as soon as small tears develop in her bark, the marihuana plant automatically begins to manufacture thickening tissue, with which she attempts to repair her damage. What is remarkable about this process is that very often the struggle has made the plant even stronger and sturdier than she was before she was damaged (by the small tears in the bark). The spot where the small tears were, thanks to the formation of new tissues, is a good two times as thick as it had been.

In short, the plants strengthen themselves where they need to, so that similar problems will not occur there again as easily. But I would still recommend that growers do not let it get that far. The difference between one or more broken off side branches or a knot that repairs itself in time is minimal and thanks to that it remains a precarious adventure. That is why it is much better to put some tension on the side branches (by all means), but not so great that it puts the plant at risk of losing her side branches. A little experience and a bit of sensitivity to what kind of tension the side branches can withstand are skills that are needed here.

As well as the knots on the plant we also need to keep a good eye on the bottom of the stem. The strings that are tied to it can easily cut into the bark. Another problem here is that the plant also begins to increase the width of her stem quite considerably just at the time when we are trying to tie down the side branches to encourage them to spread wider. In short, if we do not keep a good eye on the strings and the growth of the stem, severe damage can be done by them cutting in to the bark.

As well as a badly growing stem, such damage can also open the door to innumerable diseases and cause oozing wounds. It will also cost the plant a huge amount of energy to repair, all the while leaking her valuable nutrient sap. We are better off avoiding this whole situation, and this is quite easily done by every two or three days just undoing then redoing up the strings to the stem. This method does of course cost you extra work, but it will also save you a whole load of trouble!

The buds of the plants

As well as encouraging the plants to develop in breadth it is also important to keep them growing at the same height (in order to make sure that the lamps still have a reasonable amount of room at later stages of their development). Since one plant will tend to grow faster than the other, there is nothing else for us as growers but to nip off the top growing shoot (the one in the crown of the plant) of each plant as it reaches the predetermined ideal height. In growers' jargon this procedure is known as topping a plant. Topping our plants is not actually very difficult, provided that we do it with a little care and attention.

Some growers simply cut the uppermost growth shoots off, but I prefer to gently pinch or snap the single grow shoot at the very top with two fingers. By doing this you limit the wound inflicted on the main stem considerably and avoid the plant losing an unnecessary amount of feed sap. There are various sap streams that flow through the stems (and main stem) of the plant that provide the whole plant with nutrients. Were we to just snip off the growth shoot with some scissors then very often this will leave a sharp (trimmed) tip and the plant will have some difficulty healing the whole wound. An unnecessarily large (nutrient) sap loss for the plant is the result. What's more the healing of the wound is also extremely important as this is always a critical spot for attack by moulds and suchlike. Should the wound not heal and sap continues to flow out of it, this forms an ideal source of food for fungi and / or pests.

To prevent this from happening, for a start we can try and remove the growing tip as early as possible. If it turns out that we have not kept a close enough eye on the height of the plant and we find that we have to trim off the top (for example) 20 centimetres (in order to get it back down to the required height), this will have dire consequences, given that the wounds inflicted when trimming back by 20 centimetres to the side branches (taking that much off will require some side branches being removed too) will

be much greater. If we are more timely in our removal we can just pinch the top-most growth shoot carefully off the crown of the plant, so that we also pinch the stem shut and so prevent the sap streaming from the wound. The plant can now more easily repair the damage it has incurred.

Should the plant then still continue to lose excessive sap, which is what is happening if we see the leak continue to stream, then we can stop the leakage by staunching the wound by sticking a clothes peg on it. This maybe sounds a bit weird, but it works a treat. What is more the clothes peg makes it easier for the plant to repair the wound, since the tissues can be more closely pressed together. The plant will now quickly make new tissue again and plant will be stronger than ever before!

As well as the above mentioned methods to help the plants develop well, we can also give them a helping hand by regularly turning the pots. In this way the plants will be given direct light from all sides and that will be to the benefit of their growth. When we do not turn them then we will very soon have problems with wonky growing plants and / or plants which have a great looking front (where the light falls), but at the back (where the light has rarely shone) there has been very little development. These are important aspects to bear in mind all the time, because before we get to take our plants indoors for blooming we have to make sure that we have marihuana plants that have developed more or less perfectly. So all around the plant there should have developed strong side branches, on which later robust flower heads will (can) grow. For this reason, thin and / or poorly developed side branches are best removed as soon as they are diagnosed. What's more the plant also needs some time to heal the wounds of their removal with binding tissue, so that it will automatically have a new bark layer.

The poorly growing side branches and / or other growth shoots that we have removed during the growth process we can nicely recycle to make clones out

of. The plants for the outdoor growing – indoor blooming experiment I had raised from seeds, and that is why we need to separate the males from the females, when the seedlings begin to develop into plants. I have outlined the principle in the past. And it is really easy anyway. From each plant we take a growth shoot (for example one of the poorly-growing side branches that we have removed) that we first allow to take root (make a good note of which shoot comes from which plant, for which it helps to number the pots!). Once the growth shoot has rooted and therefore has transformed into a clone, we place it under a lamp. The lamp of course must be the only light source, so make sure that the space where the clones are stood is only illuminated by this. Once the clones are under the lamp, then set the number of hours' light they receive to 12 and the clones will have begun to bloom within two weeks. Now it is a simple matter of looking which clones are male and which are female. Then we simply remove the male clones (they usually bloom earlier) and then based on the numbers on their pots we can then remove the father plants (they're male, remember) from the main grow site. The father plant can best be destroyed immediately, unless we are planning to use him for fertilising a mother plant. This pollination of the female plants has the advantage that we can create new, strong varieties ourselves, because we can cross them with each other. It can be an idea when we are halfway through the summer, when the plants are on their way indoors, to take a number of cuttings from each mother plant before she is brought into bloom, from which we can make a nice selection and therefore we have no need of male plants.

In the next article the plants will have matured into real bushes and we will be looking at bringing them indoors for their blooming. The indoor space where the White Shark plants will be doing their blooming happens to not be in the same neighbourhood as the outdoor spot where they are being raised. So we'll be looking at how to pack up the plants, how to transport them, and how we will be making preparations for them making the big trip indoors.



Thanks to all our efforts the plants have now all more or less reached the same height. Now we just have to get them indoors.



To finish off, here once more are the five loveliest mother plants in a row. If you compare this photo with the photo taken before all our treatments, you can clearly see that the plants have done better as regards dimension. All our efforts have been amply rewarded!

By Weckels, the grow specialist from Atami

Outdoor growing – indoor blooming (part 3) *Preparation and transport*

In the previous article we were able to see how the plants had begun to develop into ever more compact bushes. Thanks to the fact that we had provided the plants with a richly fertilized soil base and had allowed the plants to do their (pre) growth in a nice sunny spot, our bushes had reached an ideal size and shape. The leaf cover has developed optimally too; each leaf numbers at least five fingers and the bushes have a strong stem with well-developed side branching. All these points combine to ensure that the plants, once they are indoors and under artificial light, will not disappoint us. Quite the contrary in fact; thanks to their having the ideal environment indoors, we can count on some top results and/or be sure to harvest some fantastic looking flower heads that will be dripping with a thick crystal covering.

Before things get that far however, we are now at the stage where we need to make the preparations for the plants to make their big move indoors. In this article I will try to explain what the most important points to be aware of, as well as what we should and should not do.

Of course as growers, we can also decide to just give the plants two months of pre-growth outdoors, and then let them continue to grow nice and hard indoors. Should these two months turn out weather-wise to have plenty of sun, then by the end of these two months the plants will end up just as large as their precursors that had been given a month before that to grow in addition, if that first month had not been especially good weather. In order to minimise the risks associated with the outdoor weather conditions, I generally opt for allowing the seeds to germinate from the beginning of April. Should the weather turn against us (lots of rain and heavy clouds), then the plants will still be the end of July sufficiently well developed to be brought indoors. If the weather turned out to be good (lots of sun and an average temperature between 22 and 27 °C) then the plants could even be ready for the move by the end of June. Do bear in mind that should the plants not be ready to move indoors until August, we will only be able to put the plants into a 12 hour light cycle. The bloom hormones in the plants will by the beginning of August will already be cranking out at full speed and it will not do the plants any good at all if this process is interrupted by putting them into an 18 hour light cycle. The plants will only become unnecessarily stressed, which will be to the detriment of the eventual harvest. Furthermore the plants will use up an unnecessarily large amount of their stored energy to cope with this stress.

Before we can actually bring the plants inside it is very important that we do a number of things to prepare them for the

move. Because the plants, which we have allowed to do their pre-growth outdoors, are going to bloom indoors, it is of course quite likely that they are going to be seen being moved to the indoor space. Now some growers will have raised the plants a short distance from where they are to be taken indoors. For the grower who has not managed to set up his grow space around the corner, there is no other choice but to transport the plants to the where the indoor space has been set up. Given that the plants will by now have reached a considerable size, then moving them in an ordinary car is actually not possible. We could perhaps try by lying the plants on their sides, but this method is anything but pleasant for the plants. Furthermore the moving car, with all its movement to and fro, can do some considerable damage to the plants and/or leave a powerful hemp aroma hanging about the car interior. As well as this not being something you really want, you are also increasing your chances of being busted quite a bit. Especially when you remember that things can seem better than they really are, because as time passes you will tend to grow accustomed to the smell of the hemp, but others who have not been so exposed will find the smell far stronger. So try to make sure that for the whole duration of the move you need to open the windows or doors of your car or hired transportation as little as possible (and preferably not at all). In short, make sure that the car's gas tank is well filled so that at least you don't need to visit a service station, and so on.

The drawback with transporting the plants by car is that for a start it is very unlikely that you will be able to move all the plants in one trip. Also, it is pretty noticeable and somewhat suspicious to be seen with 'something big' wrapped up in black plastic lying in your car. Passers-by or other road users will, curious as they are, do everything they can to try to discover what it is exactly what's going on with the bags. And a pair of prying eyes is definitely the last thing you want to deal with as a marihuana grower.

So it is transportation of the plants in a large delivery van that gets the nod as our preferred method, given that with it we can move all the plants in a single trip (provided we do not have too many). Also, now the plants are standing in a separate space, namely the freight compartment, thanks to which the hemp aroma does not spread throughout the delivery van. On top of this the delivery van has the advantage that the plants can be stood up during transport, as long as when we are hiring the delivery van we take account of the size of the cargo compartment. Because standing plants are kept in their natural position, the chances of damage is reduced considerably. As a final point, transportation of goods (in our case, plants) in a delivery van is



A few days before we actually bring the plants into the indoor grow space, it is of huge importance that we treat them for a few days in a row with an organic pest control. In this way we can prevent an indoor insect plague from breaking out.



Here once more the beautifully developed mother plants next to each other. On their last day we give them no more water, which will make the plants a bit easier to carry.



All budding shoots have reached more or less the same height. This will greatly



Here we see the plants from above. You can clearly see how well they have developed. They have become lovely, compact bushes.



We take the plants in one by one. First we open a large black container bag and stand the flower pot in it. Next we carefully pull another black bag over the top of the plant and pull it down over it.

absolutely not suspicious and anyone seeing it is unlikely to give it a second glance. Of course, it is still important that we show a certain level of discretion while we are working, so for example try and avoid hauling wrapped up plants around in the middle of the night – just do it during the day during normal working hours.

As regards the preparation to make before renting the delivery van (if possible it would be best to be able to loan one, which is cheaper, but sadly not all of us are in a position to do so), it is important that we get one with as large a cargo compartment as we can. In this way we can make sure we have all the plants, given their dimensions, in the van at once (provided we have not got too many). If we look at a delivery van with a big enough capacity then we are probably going to talking about an extended sprinter. This is actually the largest delivery van that you are allowed to drive with a normal driver's license. These vans are extremely popular and for that reason nearly always hired out at most van hire companies. It is quite usual that there is even a waiting list for them, so bear this in mind and pre-book your delivery van in advance. Also remember that when you rent a delivery van there is usually a quite large deposit to be paid, and some kind of ID will be needed to be shown. Again, make sure that all this is sorted out in advance. And for the younger chauffeurs among us, most van hire firms require that you have had your (car) license for at least two. If you do not fall into this category then you are going to have to arrange

for someone else to do the driving for you – a mate, an older brother, whatever.

Spraying with an organic pest controller

A week before we wrap them up prior to transporting them, we spray the marihuana plants with an organic pesticide. Besides helping create better living conditions for the plants, should there be any unwelcome hitch-hiking insects and/or larvae that make it into your indoor space, with its artificial light and warmth, they too are going to find it an ideal climate for their own growth. To prevent a massive plague of insects and/or other nibbling nasties (including caterpillars and so on), it is therefore very important that we remove all insects and larvae from our plants before we move them. Even if the plants look pretty clean while they are outside and appear pest free, I still recommend you treat the plants as a precaution. Often things are hidden from the naked eye, when somewhere on the plant there are little eggs and/or small larvae. Indoor growers know how in just a few days a fine looking plant can change into a ragged apology for a bush covered with pests. It is only a small task to give the plants a good soaking while they are outdoors and you will save a whole load of grief and effort by doing so.

Because inhaling pesticide - even organic pesticide - should be avoided as much as possible, any spraying that takes place should be done in the outdoors, where the risk of breathing it in is much smaller. As an organic pesticide I usually use the



This is how the plant will look once it has been properly wrapped. It does take a bit of effort, but the plant is nice and safely secured.



As the evening progresses, the number of wrapped up plants increases.

product Spruzit. I have had very good results with this and even professional market gardeners use it so I hear. Actually, it is a sort of wonder spray that works against anything that attacks or likes to munch on plants. It works quickly and is effective against sucking as well and biting insects, such as aphids, white fly, caterpillars, spint and beetles. It is available both in concentrated drop bottles (also called a drip doser) as well as in watered down form. It is usually packaged in bottles. I mostly use concentrated bottles with a dripper. A single millilitre (20 drops) is enough for one litre of water.

For the actual spraying of the plants I just use a regular plant spray, with a canister holding one litre of water, to which I therefore add 20 drops of Spruzit. Stick closely to the proper dosage because spraying it more concentrated will probably harm your plants. On top of this it is also a good idea spray your plants a few days in a row than to do them in one huge go with a large quantity of spray. Giving them too much spray also has no point, because all that will happen is that the excess spray will simply wash away. Before you begin spraying, give the water and the drops of Spruzit in the sprayer a good shake – we want them to be well and truly mixed before we go sloshing it over our plants. Once the water and the Spruzit are nicely mixed together, go ahead and spray your plants. It is very important that we make sure that this organic spray mix totally covers every square inch of each plant.

A mistake that many growers make is that they only bother to spray the top side

of the leaves. The insects will survive this attack by simply crawling off to the underside of the leaf. Often insects lay their eggs on the underside of the leaves so that they are well protected from the rain and sun. So we need to take account of this and make sure that the underside of the leaves gets special attention from our spraying. If we also make sure the stem and side branches get a good spraying too, then there's a good chance that any insects and/or larvae present on our plants will be wiped out safely. The plants will take up the Spruzit via their leaves, thanks to which the insects and/or larvae will find these leaves anything but edible. In order to give the plants the chance to take up the substance via their leaves and at the same time prevent burning (by the sun), we spray the plants only if it is not raining (otherwise it would simply be washed straight off) and in the evening. This is by far the best time to do it, because the plants now have barely any trouble from the wind (in the evenings the wind has mostly died down), thanks to which the plant will be more easily able to absorb the liquid via her leaves. Also, the chances of burning by the sun's rays in the evening are nil. That is not the case during the day, when the water can have the same effect as a magnifying glass; droplets focus the sun's rays which can then form burned patches on the leaves – which is the last thing we're looking for as growers. In addition to helping combat and/or prevent insect infestations, Spruzit also has the great benefit of disguising the hemp aroma to some extent, because the substance smells quite strongly of aniseed. In short, the smell of the Spruzit compensates for the hemp aroma and that is something to be welcomed during transport of the plants (the smell will hang around for a couple of days).

Wrapping

Once we have treated our plants for several evenings in a row with Spruzit, then the chances are very high that we will have (to a sufficiently large extent) cleared our plants of pests. Assuming we have been able to sort out a delivery van and have set everything up in the indoor space and/or tailored everything for the arrival of the outdoor plants (lamps hung at the right height, enough space created, and so on), we can make the final preparations for the wrapping of the plants. Because it is pretty hard to come by cardboard boxes with sufficiently large dimensions that we can fit our plants in one, our best bet is to just wrap them in large plastic sacks. The idea of course is that casual observers will not be able to peak through this plastic and see its contents which is why we go for large plastic bags that are black. Rubbish bags are often not big enough. Far better to go for the really big container bags. These are usually available from the larger garden centres and thanks to their massive size are ideal for the use we have for them.

In order to make sure the plants have light for as long as possible, and so create as little stress for them as we can, we wrap the plants only just as it is starting to get dark. All-in-all, it is not such a big job and it is more important to make sure to do as little damage as possible, so do it carefully rather than quickly. In order to minimise



Once the plants have been wrapped, we can haul them over to the delivery van. In the cargo hold we place the plant in a cement tub. Three bricks are laid in the cement tub around the flower pot, and these act as ballast.



All the plants are now stood in the cement tubs and the bricks have been arranged. The plants can no longer shift around and so they can be safely transported.



In this photo you can clearly see how with the aid of ropes the plants are held together. The cement tubs have also been secured. In the cardboard box there is some of the liquid nutrients that will be mixed with water on arrival and given to the plants..



L' elongated sprinter (camionnette) a la hauteur adéquate. Les camionnettes plus basses sont parfois trop petites pour transporter des grandes plantes de façon sécurisée.

any damage, we do not give the plants any water for their last day. The branches and various and various stalks of the plant will be doing this become quite a bit tougher, because the plant will not have been able to take up any water, and thanks to this it will less easily snap or break. Broken branches are mostly something that happens to plants that have just had a big uptake of water. Thanks to the sap stream (the veins through the stem and side branches of the plant) contain considerably more water and when they are subject to force, such as from the wind or from our rough handling, the chances of them being damaged and/or snapped are substantially increased. The majority of branches on plants break or snap during storms, when it has rained a lot. This makes the plants much more vulnerable. In short, as long as we do not give the plants any water for the last day, the chances of them being damage in their move are reduced.

Another side benefit of cutting out the water for us as growers is that we reduce the chances of giving ourselves a hernia, because the pot with dry soil in it is quite a bit lighter than if we had drenched it with feed water. The technique allows the plants to suck up and lose by transpiration the remains of the moisture from down in the base of the flower pot, which again will make the pot quite a bit lighter. A well-developed root system can take up and hold an enormous quantity of water to the extent that a well-watered plant in its pot can easily weigh double the weight of a plant that has not been given water for its last day.

But making the flower pots lighter does have a drawback in that the plants will more easily tip over and so again run the risk of being damaged. To reduce this happening during transport as much as possible, we can put each (relatively small) pot with a plant in it into a larger cement tub and then lay bricks around the pot. In this way we make sure that there is no movement between the outer side of the flower pot and the inside of the cement tub.

By doing this the plants, thanks to the weight of the bricks, are now well anchored and are not likely to slide around and/or tip over. The cement tub full of stones holds the plant in balance (it acts a bit like the keel under a boat). But just before we go sticking the plant into the cement tub, it is important that we have first put the cement tub in the delivery van. So we put the flower pot with the plant in it into the delivery van, put this into the cement tub and only then start laying bricks in the cement tub around the flower pot. If we don't do it all in this order then we just end up with pots too heavy to lift into the van thanks to the weight of the bricks.

The order that we do all the steps in is important. When we arrive at the plants' destination, the first thing we need to do is take the bricks out of the cement tubs, so that once again we only have to lift the flower pot with the plant in it. This method works superbly; in fact I have never had a plant that did not survive its move in good condition.

Before we finally put the plants in to their cement tubs (one plant per tub), we first wrap them in their black container bags. Every grower can well appreciate, I'm sure, that the last thing they want is to arrive at their indoor grow space and have to lug uncovered marihuana plants about. Since we are going to lugging and securing one plant at a time, and taking into account the size of the plants, they should be individually wrapped. Take your time over this; rushing it will only create more problems for yourself, such as broken branches and whatnot.

As for the actual wrapping, there are a number of possibilities. I usually opt to tie the sticking out ranches back with string to the stem so that they do not protrude to much.

The main goal is to make the plant as compact as possible, before we start putting the black plastic container bags around them.

Once we have all the sticking out branches neatly bound, first unfold the large black bag and put the flower pot into it. Then we carefully take a second black container bag and pull it down over the plant. Once the top-most bag has been drawn down fully over the plant, we take hold of the bottom bag (partly under the pot) and pull that carefully upwards over the plant.

At the point where the ends of the two container bags come together, we stick them together with strong gaffer tape. The plant is now nicely wrapped up. It is a good idea to do the plant wrapping close to the delivery van, so that we do not have to haul them vary far. Once



once they have safely arrived, we give the plants a good., big does of feed water (water with liquid nutrient mixed in to it). This is something the ladies have earned!



It looks as though only a few small branches have been lost during the whole transportation process. The yellow leaves of these are clearly visible. Remove them as soon as possible, to minimise the risk of a mould or pest infestation.

they've been hauled over to the van, just lift them up into the cargo section. Only here do we do the trick with the cement tubs and the bricks I mentioned earlier.

Once the plants are all packed up, and we have got them into the cargo hold and the flower pots are nicely anchored in their cement tubs with stones or bricks, we shove the cement tubs (in each cement tub a flower pot, with a marihuana plant in each) up against each other. Now it is just a question of tying the tubs down securely with rope so that they do now slide against each other during the trip. This is really important, otherwise there is a good chance there will not be much left of our plants by the time we arrive, if the bushes are hurled against each other.

In the cargo hold there are usually special attachment points, to which we can tie the ropes securely. Make sure that the rope is carefully placed around the outside of the black bags so that the plants do not slide into each other. Use a thicker rope so that it does not cut into the bags during the ride.

Now, finally, everything is ready for the transport to begin!

Once the transport is done and the plants have arrived safely at their destination, make sure you give them a good dose of feed water, so that they can refresh themselves after all that jerking and hauling around.

In the next article we will be taking a look at how things are looking for the White Shark plants now that they are in their carefully set up indoor grow space.



The plants are so large that with the steeply sloping roof it looks as if it will be quite hard to set the lamps at a reasonable height above them.



After the White Shark plants have been given their necessary feed water, they will recover rapidly. They find these new indoor circumstances just to their liking.

By Weckels, the grow specialist from Atami

Outdoor growing – indoor blooming (part 4) *Once they're indoors and under lamps*

Those of you who thought that Weckels World of Wonders (outdoor) only looked at issues regarding outdoor growing have a false impression. From this article (part 4) onwards, I shall be dealing with the growing of marihuana under artificial light (indoor growing), since after all, we are looking at letting our plants bloom indoors. But never fear: this does not mean we are coming to the end of the articles devoted to outdoor growing. Fans of the great outdoor can rest assured that there will plenty more lovely articles on the way with which I will be aiming to help you get the most out of your patch of soil.



Here you can see all five plants stood next to each other. Given their size, we have chosen to stick the plants straight in to bloom right from the start.

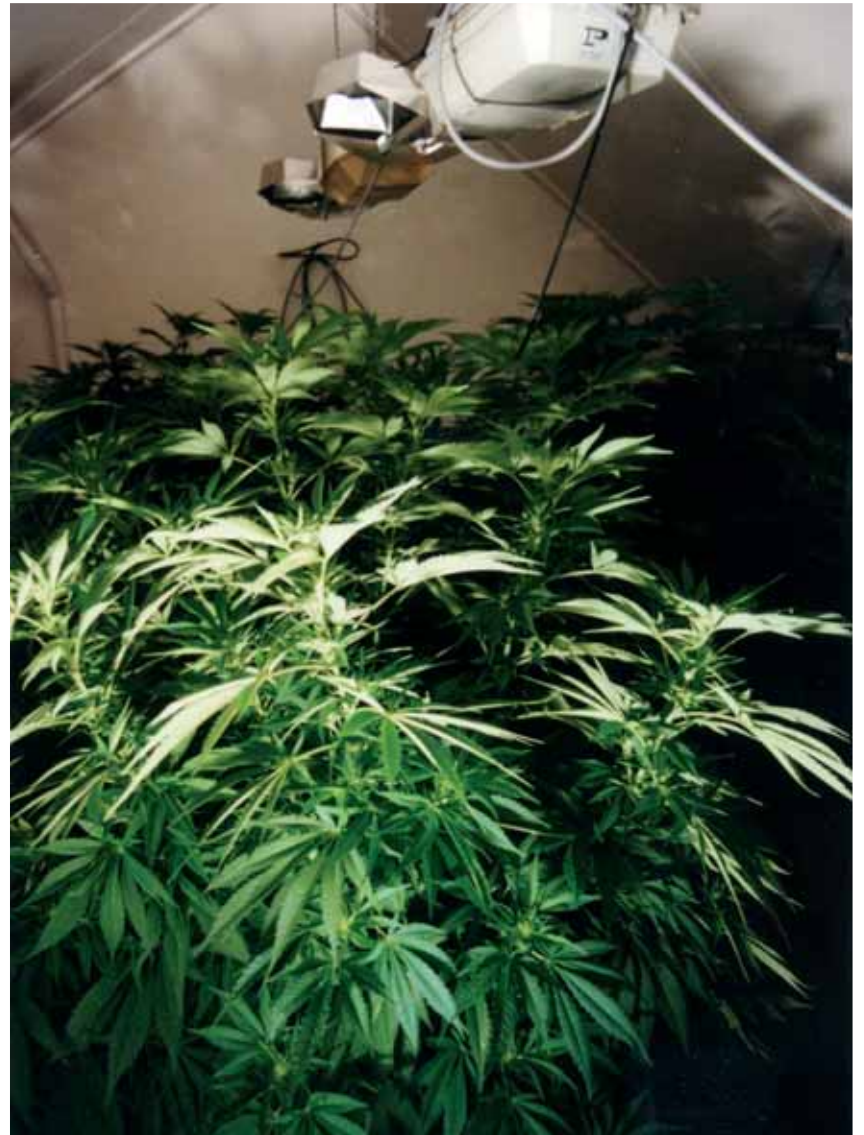
In the previous article in this series we saw how we could safely and securely transport our plants to their indoor space. In this article we will be looking at how the lives of these plants are progressing and how we can best tailor conditions to their needs. Growing indoors often demands a bit more experience from the grower, or in any case a bit more technical skill and with it a reasonable level of insight. As a indoor grower you will often be called upon to take account of a number of (new) factors. How many lamps can I safely place in my grow room? What is the maximum height I should allow my plants to reach in order that they still have some leeway under the lamps? How do I best look after the air circulation? These are all important aspects that help determine a successful crop of indoor marihuana, aspects that during the growing cycle we have to have a firm grip of in order to maximise the living conditions under artificial light. In coming articles I will be paying attention to these and all the other important issues.

But first I would like to return briefly to the outdoor plants that we have now moved into their indoor space. Since we will need to provide the plants with large volumes of water once they come indoors, it is a good idea to place the large flower pots with the plants in them onto large dishes. These dishes are available from pretty much all garden centres and grow shops, and are very practical for our plants. Preferably you

should buy as large dishes as you can, so that they can hold more than enough feed water. This is pretty useful, because otherwise the dishes would run the risk of overflowing every time you watered the plants, which in turn means having to mop up after each watering too, with all the hassle that entails. What's more, a larger sized dish offers the possibility of keeping a close eye on the water that overflows with the aid of an ec meter. But this is something I will be going in to in greater detail in a later article.

So each pot with a marihuana plant in it is stood in a single large dish. In this way we can easily provide the plants with large volumes of water, without most of it streaming away immediately (because a large amount remains behind and available to the plant in the dish). The high quantities of light and the high temperature ensure that the White Shark plants use an amazingly large amount of feed water. This is something as growers we need to keep firmly in mind, because an indoor plant under artificial light that suffers a shortage of water (and thereby also of liquid nutrients and stimulators), will have much more trouble achieving a big harvest than a plant that has been richly provided with plenty of nutrient-rich moisture.

Given this reality it is perhaps handy to look into having automatic irrigation, so that we can also take the odd day or two off without having to worry that the plants



After about week and a half you can clearly see from the plants and the state of their leaves that the bloom hormones have begun to do their work on the plants.

are going to suffer any deficiency of feed water. If you choose to go down this route, take care over the amount of (feed) water that you program the plants to be given. To prevent your dishes overflowing it might be a good idea to give the plants smaller amounts of water, more times a day, rather than giving them one huge dose all in one go.

Because we will be visiting our growing space every day, we can choose in this grow to give the plants water by hand. It is perhaps a little more work, but we do keep everything under our own close control and we can therefore offer our plants maximum care. Rather than schlepping everything around in a bucket, we can place a feed water vat in the grow space with a submersible pump and a smaller circulation pump inside it. The circulation pump makes sure that the nutrients, the stimulators and the water are well and truly mixed and stay mixed with each other. If we did not do this then the liquid nutrients could run the risk of settling at the bottom of the vat and concentrating themselves around the submerged pump (which is at the bottom of the vat). What would then happen, I think every grower can well imagine. When the submerged pump was switched on the plants would be inundated with much too high a concentration of nutrients and stimulators. In short, the nutrients and stimulators are not well dispersed throughout the water. If you still decide that you don't want to use a small circulation pump, of course

you always decide to just give the vat a thorough stirring with a bamboo pole or something like that, so that the nutrients, stimulators and the water are still well mixed, whereupon we can safely use the submerged pump.

In our grow space the submerged pump pumps the feed water (water with liquid nutrient and stimulators mixed with it) through a garden hose when it is switched on. The hose then runs from pot to pot and is secured to each plant's main stem, so that it can not flap around. In the hose there are holes punched where it passes over each flower pot, so that the feed water can easily flow out. So we only have to switch on the submerged pump and each plant is provided with everything it needs.

We do still need to pay attention to ensuring that the plants have used more or less all the fertilisers from the soil they were growing in, since the plants have had a good length of time in pre-growth. It is therefore very important that in any case we provide the plants with liquid nutrients (eventually supplemented with extra stimulators), so that the plants do not become deficient in anything. Our earth mixture did contain some substances that only become available to the plant after a certain period of time has passed (such as the bone meal for example), so we need to avoid washing away the earth as much as we can. Also make sure that the dishes are not allowed to stand filled



After the plants have been in bloom for about two weeks, the first flower heads will start to become visible on them.



The plant is now making little flower heads on each bud.



A White Shark bud, just as she innocently starts to bloom.

with water continuously, as this will limit the amount of oxygen that can get to the roots, and that would be a great shame since as you know, plenty of oxygen is a vital ingredient in keeping a root system healthy.

One other important point is that the feed water that is left standing in the dishes sometimes can have a very different concentration of nutrients in it. This is because the plant has already extracted the nutrients she most needs as the water made its way through the substrate in the pot. The remaining unused nutrients are those that our green lady has allowed to flow away. For this reason I usually remove the excess feed water when the plant has not soaked it up after two or three hours.

The light cycle under artificial light

The composition of the feed water is completely dependent on how we plan to let the plants keep growing indoors. For having female plants do their blooming indoors there are two possibilities. We can provide the plants directly with a 12-hour light cycle from the moment they are put under lamps, thanks to which they immediately start to bloom. Or we can prolong the growth period of the plants indoors, by putting them into an 18-hour cycle (with the aid of a timer). By using

this latter method we can prolong the growing period of the plant in such a way that the plant, after she has already spent some time outdoors, is given an extra helping of energy, as it were.

The plant saves some of the energy during both grow phases and so will have an enormous amount of energy for use during the bloom period for making flower heads with. So much that it is fair to say that there is no other growing technique that can compete with this one. Of course, to use it you do need to be in possession of a growing space of gigantic proportions, one that can take plants raised outside and put under lamps to achieve (even) more growth. The plants will have already reached a pretty decent size outside and once indoors under artificial light, provided with conditions as near to paradise as they could want, they will go on to achieve unimaginable dimensions.

So as growers we first need to make the decision as to whether we let the plants bloom immediately or whether to prolong the growth period. Once we have made that decision, then we know what the right nutrients and stimulators we will need to add to the water for the job are, so that the plants are provided with all the necessary nutrients.

If we choose to let the plants grow for a while longer, then I just add a liquid

nutrient to the water. Sometimes I also add a little root stimulator, so that the roots can continue to develop a bit more. A root stimulator also frequently provides for an optimal soil life, and that is something all growers are striving for. After all, you want the plants to be able to absorb the nutrients as well as possible. The basic nutrient consists in most commercial varieties of an A and B nutritional component. With feeds such as these you can only mix the A component to the B feed, after the feed water vat is more or less filled with water. But just to be on the safe side, you can always check the label carefully. Other (liquid) nutrient brands employ an all-in-one nutrient, and these are also known as complete or total nutrients. As a grower it is just a question of trying for yourself and seeing what you get the best results with.

Once we have put the plants in to bloom, or if we plan to immediately put them in to bloom, we bring the number of hours' daylight they are given back down to 12. It is a good idea to take a number of cuttings from each plant before we put the mother plants in to bloom. Number the pots that you put the cuttings in to, so that we can always tell from which mother plant each cutting came from. The cuttings are put in a separate room, for example in a small cupboard, under fluorescent lamps. Should in the meantime one of the mother plants develop in to a real cracking plant, with loads of good characteristics like lovely white buds, sturdy side branching, a gorgeous green leaf cover and a good yield, then we can use her clone to grow further indoor crops from. If you forget, you would not be the first grower to have allowed a fantastic mother plant to bloom and then realise he had no way of getting clones from her. The consequence is a great end result, but one that cannot be followed through because the mother plant has left no descendants in the form of clones with which to carry on her line. A few growers I know have managed to keep a plant alive after harvesting it by then perking it up with some extra light and thereby getting her back into the growth phase. Such a method requires a lot of time and patience from the grower and is still far from an ideal solution. We are far better off thinking ahead a little and taking clones from each mother plant before we set them in to bloom. It will save us a load of hassle, and who knows, even drop your very own 'super race' in to your hands!

To come back to the issue of light hours. In considering the number of hours that you plan to give your plants each day, you must take good account of the conditions outdoors. Besides the fact that during the night electricity is cheaper to use (for the growers among you who pay for their electricity), there is also the fact that in summer especially, it is easier to keep the temperature in our grow room constant (ideally between 24 and 27 °C), than if we let the lamps shine during the day. Particularly if we are growing in the attic or in a shed, when the sun shines pretty much directly on the grow space, then the sun can be a really annoying factor due to its ability to raise the temperature in the grow space considerably.

This problem we can largely eliminate by allowing the lamps to burn at night. The difference between day- and night-



Threatening to wreak havoc, there appear to be a couple of males among our plants. We have removed them immediately. In retrospect this could have been avoided. But growers sometimes do want to be stubborn, and this is an attitude that can sometimes lead to problems.



After we have removed the male plants, we are left with three remaining. These now have much more room and that will be to the benefit their development.



Since we now have more space available, the plants can be more easily placed in the middle under the lamps. So we no longer have any trouble with cramped conditions under the slanting roof. However, for a good spread of light we may well need to reposition the lamps.



On the underside is clearly visible how we have positioned the irrigation system, in the form of a hose (that is connected to the submerged pump).



The development of the flower heads is still exasperatingly slow. This is actually one of the properties of the White Shark plant; she starts out blooming very slowly!



After about a month the whole space is packed with blooming plants, on which the buds are rapidly beginning to develop.



A White Shark bud up close. The plant has now been blooming for about four weeks.



One week further on and the buds are getting bigger by the day.

time temperature outdoors in the summer months can easily be 15 °C. This can contribute considerably to the level of the temperature indoors, and so the plants will thank us for choosing to let the lamps do their work at night (so that we can with a bit of luck keep the temperature indoors below 30 °C), rather than during the day. Sometimes the heat just cannot be beaten in any way, which leaves us no other option than to remove one of the lamps from our grow room and/or grow at half power. A few people do try to slow the rising temperature by getting themselves an air conditioner. Besides their huge energy use (something that is not always an option because the grow space is maxed-out already in its energy use), their cooling capacity is often not sufficient to suppress the heat. During the months of summer it therefore only remains for the majority of growers to just make the best of it, although there are always a few handy growers who manage to cobble something creative together to help them keep the temperature under control.

Fertilisers

When the bloom period takes off – or we as growers allow the bloom period to begin - (since it now us who control the interior conditions), this has an immediate impact on the fertilisers we have to add to the feed water. Given that the bloom period for the majority of growers is the most important period of the whole grow cycle (since it is here that the financial gains are to be made), it is now that the plants themselves need more and more extra (supplementary) fertilisers. In particular, the plants during this period have a great(er) need for phosphorus. This is something we have to pay attention to and therefore from now on we have to add bloom feed as well as the nutrient base to the feed water. We can also decide to add at this stage some extra bloom stimulator to help the plants (as well as us growers) go totally crazy. I personally, along with many other growers, opt to use in addition a PK 13-14 for that little bit extra. PK 13-14 is actually nothing more than a high quality, pure and natural phosphorus and potassium preparation. It ensures a healthy root growth, stimulates the plants' readiness for blooming as well as stimulating an exuberant bloom. They are all tricks for powering things up a bit or get the buds to develop that extra bit of plumpness.

Make sure that when you use PK 13-14 you use a bit of caution. Start with a really low dosage (= 2.5 ml per 10 litres of water), and then build it up really slowly, and this will usually give you good results. There are growers who already start getting their plants used to the PK 13-14 a week (sometimes even earlier) before the bloom period, by starting to add it to the feed water a week (or more) before the commencement of the bloom period. Especially for growers of short-blooming varieties (such as for example Top 44), these tricks have the effect of making sure that the optimum quantities of PK 13-14 are given to their green ladies. They are aiming in any case to be able to give the maximum dose of PK 13-14 to their plants (= usually about 15 ml per 10 litres of water) before the bloom period comes to an end. The fact is that one variety of marijuana plant can handle a considerably

higher dose of PK 13-14 than the other variety. But actually, this goes for every type of nutrient and stimulator that we add to the water. It is important as a grower to keep a close eye on the plants and observe whether they have everything just right for their specific needs. When we set to work carefully and don't do anything crazy (like suddenly whacking up the dosage of nutrients given), then the plants will develop just fine and the bloom period will proceed successfully.

In order to make the feed water for the plants that little bit more attractive, we can also make sure that the temperature of the feed water is kept around 21 °C. This is the most ideal temperature for keeping the marijuana plant happy and for them to easily and above all optimally take up their nutrients and stimulators and make use of them. As long as the substrate (the soil mix in which the roots are anchored) is warmed up a little so that the feed water has a temperature of around 21 °C, then the whole process will work out very well for the plant. Growers who pay attention to this final detail will enjoy an advantage over those colleagues who just chuck cold water over their plants. Cold water has the effect of slowing things down and can even put the plants under sever stress, if the temperature of the feed water has too great a difference from the ambient grow room temperature (which is much higher).



Despite the fact that the White Shark has only just started to bloom, she has already started to make great amounts of THC crystals. The buds also now start to get quite a bit fatter and stronger (tastier) to smell.



Four lovely buds in a row. If you bear in mind that the bloom period is only around half way through, these promise to produce a whole load more pleasure before they're done!

The plants that I grew for this 'grow outside - bloom inside' experiment were raised in such a way that they were able to be put straight in to bloom. Letting the plants continue with pre-growth did not make any sense. To put it more strongly, the plants might even have been damaged by doing so. We already have enough trouble getting the plants to fit under the lamps with a reasonable degree of safety.

Even so, during the first weeks of the bloom period they did manage to cause a (small) drama. There were apparently a couple of males lurking among the five well-developed plants. This could have been avoided by taking clones from each individual in advance and putting them into bloom, as I have described in previous articles. I myself was almost convinced that I had all females, and five colleagues I've worked with for years were equally convinced. But the stubbornness of growers is often punished, and that was the case here. A small silver lining from this event was that the other three plants (and these were the loveliest of ladies) now had all the space they could possibly want for developing huge buds. In the following article we will have a look at how the bloom period of White Shark progresses and what possible problems we might expect to have to deal with.

By: Weckels, the grow specialist from Atami // Photos: Weckels.

Outdoor growing – indoor blooming (part 5)

The bloom period under artificial light

In this episode of the ‘Outdoor growing – indoor blooming’ experiment, we will be taking a look at what factors are of importance in keeping conditions as close to the wishes of the marihuana plants as possible. Because after all, as indoor growers we are able to create an ideal living environment for the White Shark plants, so that the ladies will bloom optimally. The plethora of nutrients, stimulators and the PK 13-14 with which we have continuously been applying to the plants, will by now have shown their effects on the bloom and growth of these well-developed plants.

we would have a situation where there were large differences in temperature between the day (when the lamps are on) and the night (when the lamps are off). During the day the extractor would most probably work fine, because it would be removing all the warm air as much as possible out of the space. In the dark period, so when the lamps are not on, then the temperature in the grow room naturally will fall, thanks to which allowing the extractor to churn away at full speed would be pointless. Even more seriously, allowing the extractor to



These fine bushes will most definitely be creating some lovely flower heads!



Even from a distance, the plants still look very impressive!



The flower heads are beginning to reach a good size. And they haven't even finished blooming.

In addition to the quantities and correct composition of the fertilisers that we have been adding to the marihuana plants' feed water, the quantity of light they received also has a huge influence on the size and quantity of the flower heads that the ladies have been able to produce. If growers know anything, they know this, and this has been the impulse for many to pack their grow space as full as possible with lamps, in the hope of realising as large a harvest as possible. What they forget is that frequently, adding a lamp or more to the grow space can have huge repercussions - for the temperature in the space, for example, or the quantities of air that have to be expelled from the grow space, or the air moisture content. Should the temperature in the grow space for example rise above 30°C (because we have hung more lamps than there were to begin with), then the plants will be hindered in their growth and further development. Should the temperature rise even further than this, then the plants will not grow and / or bloom any further at all. In short, the development of the plant will come to a practical standstill. In this way it can happen that increasing the quantity of light leads to a tangibly lower harvest and therefore absolutely not to the improvement in yield that was originally hoped for.

A marihuana plant will try to compensate for too high a temperature by pumping out more moisture by transpiration. By doing this the plant tries to reduce her temperature a bit. A good reaction, you might say. But what many growers do not appreciate is that this operation costs the

marihuana plant a lot of energy. So this is a real waste of effort for them, and this is a pity especially when you consider that the ladies could have used this energy for growing more and bigger flower heads instead. When we as growers take steps to prevent the plant having to evaporate more moisture, by bringing the temperature down ourselves and keeping it under control, then the plants no longer need to worry themselves about this. The green ladies can then put all their energy into creating nice big buds - which is something that will be clearly apparent to us too. It is not for nothing that growers with heat problems in the grow space achieve considerably less impressive results than their colleagues who have managed to keep their temperature safely under control.

Ideal values

In the event that we still feel that we need to hang some more lamps in the grow space and still want to keep the temperature within ideal values (between 24 and 28 °C), we can do this by installing a large(r) air extractor in the space. After all, this will have considerably more capacity than its smaller predecessor and will consequently be able to remove much more warm air from out of the grow space. One passing remark to add here is that the air coming in from outside the grow space must be considerably cooler. If the incoming air (the air drawn in to the grow space from outside) is not - for example during the summer months - then we can run the extractor as fast as we like, then

temperature in the grow space will barely be nudged downwards. After all, during the summer months the temperature of the outside air is pretty high (a minimum of around 18 °C), and thanks to its warmth it will do little to compensate for the heat from the lamps. In short, a couple of extra lamps in the winter months is do-able, but during the warmer months it is a problem.

In addition to this problem, a larger capacity extractor will often make quite a bit more noise and furthermore use a lot more energy in its operation. We can do something about the racket by making a sort of sound-dampening hood around it. With the aid of some insulating material and a few DIY skills we should be able to limit the noise to a minimum. For the grower not blessed with even rudimentary handiwork skills, many grow shops also stock ready-to-use sound-dampening casings. These are often available with the purchase a new extraction installation for a small additional price.

Staying with the air extractor installation issue for a moment, it is also advisable to let the extractor operate via a so-called step thermostat. This is actually a sort of switch mechanism that makes sure that the extractor speeds up or slows down step-wise (depending on whether the temperature is too high or not) and so whether it does or does not suck (more) air in to the grow room. This works really well, given that now we are able to keep the temperature in the grow room under much better control. If we were to use an air extraction system that ran continuously at the same speed, then

work flat out could even have a negative effect, because it would make the grow room too cold. Especially when growing during the winter, the temperature can have large differences between the light period and the dark period in the grow room. This can have very deleterious consequences, and that is why as growers we have to pay so much attention to this topic.

So it is fair to assume that most growers keep a regular eye on the temperature in the grow room, and yet it is precisely those times when we are not around in the grow room that are the most full of risk. It is then, after all, when we have no way of telling how the temperature in the grow room is doing. So for instance with a cold environment around a poorly insulated grow room, the temperature can drop to dangerous levels. The result of this can be a grower who regularly comes across purple or somewhat reddish leaves and / or even finds coloured branches among the plants. This phenomenon arises not from too much or too little nutrients, but is simply a signal that the plants have had to endure too much cold. Outdoor growers know all about this, because well-known outdoor varieties such as the Purple plants only develop their distinctive purple coloured flower heads thanks to the cold temperature of the outside air. If we were to grow this variety or even just allow it to bloom indoors, then their flower heads would be (almost) unrecognisable even to the fans of Purple strains. The buds simply do not develop their well-known purple hue.



With the aid of an air dehumidifier (such as this Carrier) we try to keep the air moisture content under the 50% level. The ideal would really be to keep the air moisture content below 45%

Living environment

In order to make the living environment under artificial light as peasant as possible, as growers we have to make sure that we have a good view of the temperature during the whole cycle (so during the days as well as during the nights). A handy instrument for this is a temperature meter that displays the minimum and the maximum values reached, between which the temperature in the previous period has registered. A simple press of the button on the temperature meter can then tell us at exactly when and at what time the temperature might have been too high or too low. The real professionals are well aware of the importance of this and often connect the temperature meter directly to the extractor, and quite often to a heating element too. In this case the grower actually has rigged up a sort of climate controller. As soon as the temperature falls too far, the extractor will start to draw less air out of the space, thanks to which the temperature in the grow room will rise again on its own. If this turns out to be not enough or not quick enough and the temperature does not rapidly



Because the plants are still growing in height, you can be sure these are going to develop into real monster bushes. We hang the lamps increasingly higher, to prevent burn spots from developing..

come back to the required level, then the heating element will kick in and in no time at all have the grow room back at its desired level (and of course as the temperature reaches this level, then the heating element switches itself back off again).

Since most growers tend to have their lamps on during the night, as the energy is cheaper then and / or because the energy groups around the grow room are put under less pressure in this way (at night we tend to use less energy altogether), the phrase ‘night and day’ in growers’ jargon tends to be a bit confusing. When we speak about ‘day’ when growing marihuana under artificial light, we mean the part of the day when we have set our lamps to be burning.

Although in some grow rooms a large number of lamps can easily be hung, without sending the temperature too high, of course we always have to take account of the energy supply. In every home this is made up of a number of energy groups and thanks to this the possibilities as regards the amount of electricity we can use for the grow room are often severely limited.

So far I have avoided discussing the manner in which we get hold of our electricity. A number of growers have a problem with high electricity bills and therefore try by all kinds of creative ways to bypass the meter for their energy. What you as a grower choose to do, this is something each one of us has to decide for themselves. The fact is that the growers who illegally tap their electricity often run a much greater risk of accidents and / or fires. In addition to this, plantations that tap illegally are more frequently discovered. The electricity companies are ripped off by a few growers for large amounts of energy and as a result they will go to great lengths to call a halt to this. This is contrasted with the growers who do pay for their energy, since then as well as the grower making money the electricity company is also getting its slice of the action. The increased chance of being busted by illegally tapping electricity aside, the risk of a fire and / or a deadly accident (from a heavy electric shock) thanks to the often badly botched wiring is also a point you as a grower need to have a good think about. Should your (own) house go up in flames and the insurance company finds that the fire started as a result of someone bugging around with the electricity meter or the wiring, then you can kiss goodbye to a lot more than a grow room. In short, be aware of what you get yourself in to.

White Shark

Meanwhile, White Shark plants tend to bloom in about six weeks. A commercial variety such as Top 44 will by then (after about 44 days of bloom) generally be ready for harvesting. The White Shark plants really need a few weeks more to allow their marvellous, white buds to develop to their full glorious potential. It is notable that the flower heads of the White Shark develop very gradually. In order to make sure that this blooming process continues along the right tracks, we need to make sure that the air moisture content in the grow room is ideal, and to make sure we keep it at that level. For the final blooming stage of marihuana, the ideal is when we can manage to keep the air moisture content during the period under 50%. An air moisture content of about 45% is actually the most ideal. We can tweak all the other growing conditions for the marihuana plant and still raise healthy plants, but the higher the air moisture content rises above the 50% level, then the greater chances of the subjects of our experiment being affected by a mould infection. Make no mistake; especially for the long-blooming varieties such as White Shark, the air moisture content in the grow room can not be low enough during the period in which it is blossoming.

The moulds that pose such a threat to the marihuana plant are found in the flower heads. The most feared mould is without doubt bud rot (also known in growing circles as bud molt or top rot). This mould is so persistent that when it is given even the tiniest chance to develop, for the flower heads of the marihuana plants there is no chance of escape. In addition to that, the mould is really treacherous, because in just a few days it can infect the whole grow room. The consequences of this are disastrous for the grower, given that the entire harvest is threatened with ruin.

To prevent such dramas from unfolding we as growers need to ensure that the air moisture content remains firmly under control. An ideal apparatus for this is an air dehumidifier. This apparatus draws the water vapour (moisture) out of the air in the grow room and ensures that the



The plants in the meantime have reached about 2 meters in height. This means we do need to have a good, high grow space available, if we want to have a chance of bringing such large plants to full bloom.



To prevent insect infestations we hang bright yellow fly paper in the grow room and the underside of the stem of each plant. In this way we try to combat the presence (in this case) of fruit flies.



The flower heads have been blossoming for five or six weeks. Commercial varieties should by now be ready for harvesting. The White Shark plants still need a few more weeks though!



Make sure that the grow room is continuously kept clear of dead leaves and other plant remains. These can create a ready source of diseases and / or insect infestations.

air moisture content in the grow room is kept below the danger level. An air dehumidifier that I have had very good personal experience with is the Carrier. This brand is available in various models, depending on the size of the grow room. Such gizmos are not cheap, but they do guarantee an advantageous (= low) air moisture content during the crucial bloom phase and thanks to this they would still be a bargain at twice the price!

Insect plagues

Another danger besides too high an air moisture content in this experiment is the possibility of an infestation by insects. When our plants were still outdoors doing their (pre) growth, I mentioned in this series of articles how important it was to spray the plants regularly with an organic pest controller. In this way we attempted to remain free of any insect infestation. A couple of days before we were due to wrap the plants up prior to bringing them in to the grow room for their final blooming, we gave the plants one last spray with the organic insecticide. For the first couple of weeks there was not an insect to be found anywhere. But with the arrival of the blossoming period and the first weeks thereafter, more and small flies started to turn up in the grow room. These small flies, probably little fruit flies, are easily kept under control, provided that the moment we see a couple, we take immediate counter measures. The total number of different measures that we can choose from to combat these little beasts during the bloom period is pretty limited. Bearing in mind what I have just been saying about the importance of keeping the air moisture content down, it is out of the question to go spraying any of our organic pesticide. It would seriously raise the chances of mould. Given this awkward fact, we are forced to go with a different, but also very effective, alternative approach. Namely, we hang lots of sticky strips or flypapers up in the grow room as well as on the underside of the stem of each plant. The flies are attracted to these bright yellow strips that also give off a smell attractive to flies, whereupon they will be stuck fast. This method works very well and presents no risk at all to the marihuana plants. Keep a good eye on the strips, because in no time at all they will be absolutely covered in



A primal forest of marihuana buds.



The mass of lovely buds is developing nicely. We make sure that the plants have everything to their liking, including all the necessary nutrients.

flies and then they will need replacing. During the bloom period we need to regularly raise the height that the lamps are hung at. The plants will continue to grow in height a little and this is something we have to keep track of. By doing this we can avoid burning the tips of the plants.



The small white hairs on the bud are evidence that this one has still not finished blooming.



Yet another well-developed bud. Despite the fact that this one looks really good, we are still going to give the plants a little while more to finish blooming.

As well as raising the lamps, we also turn the plants once in a while, so that all sides get a good-to-optimal share of the light. Given that the flower heads will already be pretty fat and beginning to be quite heavy, it is important that we provide some kind of support for some of the buds, so that they do not just

hang down under their own weight. If this does happen then the buds will be receiving quite a bit less light than they would otherwise have done if they were blooming right under the lamps. As a result of this the eventual marihuana will be of lower quality, thanks to the buds receiving (a lot) less light than those that were growing correctly and so make less THC crystals and therefore look less fat and attractive as a result.

In addition to this, well-illuminated buds will usually be noticeably bigger – and that is always something nice to contemplate as harvest time approaches.

So in order to make sure that our buds don't go hanging down, we stretch string or wires from the ceiling downwards and attach the ends to the flower heads. With this technique we suspend the buds from above, effectively, and give the marihuana plants a helping hand in supporting their flower heads. We have to make sure we only lightly tension the wire or string and not draw it too tight, because this could cause damage to the side branches and / or snap them – something that is guaranteed to put an end to any buds on them. Once the flower heads have been supported by the lightly-tensioned wires, we will no longer be able to turn the plants. This all sounds pretty logical, but anyone who forgets this and accidentally tries to turn the plants anyway, will create an absolute disaster. The buds will be dragged through the tensioned wires around the plants and that is the last thing we want to be doing with the plants still needing a good three weeks of blooming to finish their job.

In the next article we will take a closer look at this last three weeks of the bloom period, during which the White Shark ladies will be completing the last stage of their lives. In that article I will be outlining the most important points to keep in mind in this last three weeks. In the meantime I can reveal that the flower heads will be looking their very best!

Finally, I would like to wish all readers, growers and others involved in the industry a good new year, and express the hope that 2007 will be a year filled with marvellous buds!



This photo was taken from the side. We turn the plants fairly regularly (and when you do make sure that there are no wires attached to the buds) so that all sides are well lit. The buds will show their gratitude for you doing this.



This apparent chaos of strings ensure that the flower heads do not droop downwards. We help the marihuana plants by giving them a hand, as it were, to support their buds.

By Weckels

The ideal cross and the best conditions for raising it

In this article we are going to be taking a look at a very interesting cross, namely that between a Top 44 and a Skunk Special. This THC-rich plant is a variety I can recommend to every grower.

Top 44 comes originally from the town of Arnhem in the East of Holland, and the area around there. The growers there have had good results with it and these days it is a variety that has found its way into many a grow space.

Skunk Special was especially well liked in Amsterdam and the surroundings area, but even today you still come across the name a lot. Even so, most growers chose (and still do) for Top 44, mainly because it gives considerably earlier harvests. With Skunk Special a good rule of thumb is that it is ready for processing with the shears around the 9-10 week mark, while the Top 44 is already quivering to be harvested within seven weeks (44 days). Time savings such as this are all to the good for the commercial grower, since more harvests can be fitted in per year and that in turn ensures nice full wallets. So this has historically been the main reason why Skunk Special has had to play second fiddle to Top 44.

Combination

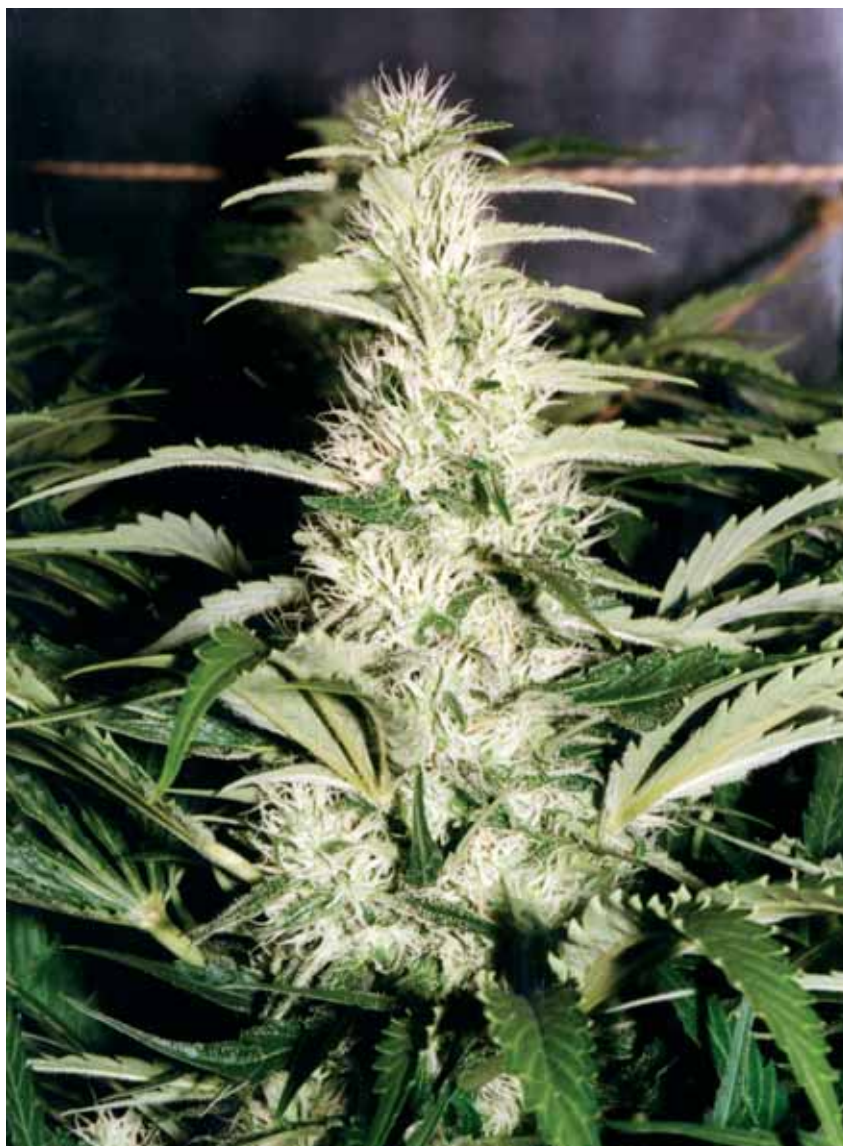
Fortunately there are enough growers who get their biggest kicks from developing a new strain or creating the perfect cross fertilisation. So it was not long before the combination of the two plants was thought of and that resulted in an ideal plant. This new cross, going by the name of Top 44 x Skunk Special, produced a weed that completely blew away many a smoker. The weed has a very sweet taste, and is incredibly potent; just a couple of drags for the inexperienced smoker is enough to guarantee a trip around the world – an effect dubbed in Dutch the ‘hamertje (little hammer) effect’. For many a Dutch coffee shop owner, the potent cross had the effect of drawing whole swarms of tourists inside, who were overwhelmed merely on opening the weed baggie. This new plant (Top 44 x Skunk Special) also produces such a strong odour that just a tiny amount of it is almost equivalent in smell to a whole plantation without carbon filters.

Filters

Staying with the topic of filters, to begin with these must be not only very thick when you grow Top 44 x Skunk Special, there must also be more than enough of them in your grow space. For a space of 12 metres we can easily use eight filters, placed a metre apart, which will give you an air scrubbing power of 8000 cubic metres per hour. Maybe this sounds like a lot, but bear in mind that you will need a lot of capacity in order to suck a really strong odour through thick filters and expel it outside. On top of that, you will also need to replace the carbon granules in the filters at least two times per year, if you can want to continue to enjoy an unpunished life as a grower.



This new cross produces not only a very strong odour; even on the large leaves THC glands start to develop during the bloom phase.



Just one of the very many lovely buds. The weed is well known for her sweet taste, along its the so-called Hammer Effect.

As for the lamps, I reckon 12 of them, each of 600 Watts, is a good investment for a grow space of 12 metres. Fewer lamps will lower the eventual harvest considerably, and that is a shame, even for the non-commercial grower.

Irrigation

The plants themselves are placed on a table, thereby creating for ourselves a convenient working height – something your back will thank you for. The table

should be about 75 cms in height. This might sound a bit on the low side, but it can not be much higher because then the tops of your plants are at some stage going to get dangerously close to the ceiling. Once the plants start to develop at full pace, they will pretty soon shoot up in height and then it will become increasingly difficult to position the lamps above them without burning the plant tips.

Another big advantage of growing on tables is that you can make the set up slant a little, so that overflowing excess irrigation water can be easily controlled. In this way the plant only takes up what she needs from the water, and she does not end up with too muddy an undersoil as the excess water flows away. We can catch this excess water with a drainpipe leading to a collection vat (preferably a large one), which we equip with a float. A float is essentially nothing more than a sensor that (in this case) activates a pump if it comes into contact with water. So the float is positioned just under the lip of the collection vat (on the inside) and prevents the overflow water (in the collection vat) from overflowing, because it will trigger the pump in time to remove water from the vat. A float like this is essential, certainly when you want to rinse out the irrigation tubes and water dripper nozzles with enzymes to clean them, thereby keeping them clean and free of salt accumulations. Back in the day (when no floats or sensors were used) you had to sit and watch the whole cleaning process, because the collection vat would now and again overflow (with all the dire consequences attached). A simple but good sensor (i.e. a float) can therefore save you a whole lot of sitting around waiting.

Lime

The table top is lined with a layer of polystyrene, with a sheet of pond liner on top of that. On top of this we spread a layer about 10 cm thick of medium mix (so below the soil is a layer of pond liner, then polystyrene, then the table top). So the medium mix serves as the base of our soil layer. Next we enrich the soil mix with lime, worm castings and seaweed-based fertiliser and dry humus (in powder form). I always add some lime to my mixtures as it ensures a good uptake by the plants of the fertilisers and also helps create a nice, neutral pH value for the whole mixture. We can safely use quite a large amount of the worm manure. It contains precisely the right concentration of the important fertilisers; the concentrations are so right in fact that you could safely grow your plants on a base of worm castings alone. However, I would not quickly advise you to do so, as with the mixture that I have described you will get way better results.

Roots

To return for a moment to the layer of polystyrene (on the table top), this serves as an insulating layer. Were we to bring cold fresh air (in Winter especially) from outside, sucked in under the table, then the roots (without any insulating layer) would be cooled down too severely. In this way the cold air can do considerable damage. A marihuana plant has a real thing against a cold undersoil, and when it is exposed to this, it will create an enormous retarding effect on growth, the consequences of

Medical cannabis: yeah, right

By Joe Kane

So here's the story: I'm lying here in my bed with a fucking chest drain in place, horrible yellow fucking gunk that looks like piss trickling out a hole in my ribs and into a plastic bottle.

Somehow, I've ended up with a load of bad health shit coming down on my handsome head. I dunno, maybe it's Karma, eh? The doctors have told me it's this or it's that: pleurisy or pneumonia with "complications", whatever that means. I've had a collapsed lung and I feel like a collapsed lung.

And they keep bitching at me to go into hospital so they can take care of me properly. Yeah, right. The way these places are these days I'd come out in a fucking box. I'd have less chance of croaking it if I hung out on a leper colony.

Anyhow, they've been giving me these big, fuck off intravenous shots of super antibiotics, and man alive, these boys show you what a bad trip really is. It starts off okay; I'm drowsy, seeing some after-images and trailers, hearing voices like they're far away. A bit like getting a buzz on with Benylin cough mixture when you're a kid and you've got no dope left.

Then it's the total hab-dabs with disembodied heads, bleeding walls, screaming and all that kind of shit. Ever taken ketamine and it's all gone a bit pear-shaped? Then you'll know what I'm talking about.

Conventional medicine? Conventional poison, more like. Let's try some traditional herbal remedy.

So I thought that smoking a goodly amount of Amsterdam Spinach might be a good thing, but readers, I got to tell you it wasn't one of my better ideas. Whoever came up with the idea that weed is medicine clearly never had a collapsed fucking lung in mind. Two draws and I thought I was going to shuffle off the mortal coil there

and then. Ah, Mr Death, nice of you to come and visit. Don't take a seat though, cos hopefully you'll not be hanging around. After all, it's only cannabis I've been smoking and everyone tells me that, one, it's harmless, and two, it really hits the spot when you're ill. That's why I'm having a near-death fucking experience right now and feel like some fat bastard is standing on my chest.

At least it's not the weed that put me in this state to begin with. Sorry, what's that you're saying Doc? The weed certainly didn't help matters much cos the smoke has irritated the lining of my already pretty fucked-up lungs? No shit. Wait 'til I tell the medical marijuana boys about this. That'll rain on their fucking parade and no mistake.

To be honest I've always had a fucking problem with all the "cannabis is good for you" stuff that zillions of people I've run into over the years have spouted. Absolute bollocks. It's like booze: say what you like, delude yourself as much as you like, but the bottom line is this: IT'S NOT FUCKING GOOD FOR YOU!

If you're gonna use the stuff, then just do it, but don't, and I mean DO NOT try and tell me you're doing it for health reasons.

So now I'm back on the evil modern Babylon medicine, the shitty hallucinations have passed, I'm getting better and probably won't have to lose half of one of my lungs.

Sorry for all the bad vibes negativity, readers, but you'll have got the idea by now that I'm not in a happy place at the moment. Think of all the above as the medicinally induced ravings of a man who is terminally sorry for himself. Hopefully I'll be back with the funny stories next time

Maybe see you later.

JK

horribly_stoned_boy@hotmail.com

which we will soon appreciate. The roots can be damaged by the serious fluctuations in temperature and then they will not function as well as they should, or even die off altogether. The result of this is at worst, a soil full of dead roots, which can be a real playground for all sorts of mould and pests for the other, non-affected plants.

So I was just talking about the air being drawn into the grow space from outdoors, under the tables. We do this so that we can be sure that the whole grow space is refreshed with new air. In order to give this process a helping hand, we let a ventilator draw the air upwards and then use a number of other ventilators or fans to blow this air through the whole grow space. In this way we ensure that the air circulation is good and that is important in the pursuit of an optimal growth and eventually a good harvest.

For a space of about 12 metres we usually use three ventilators, which is sufficient to keep the air in constant motion, which in turn benefits the sturdiness of the plants as well. We allow the ventilators to blow about 40 cm above the tops of the plants, so that the air moisture content there does not get too high. Especially when we blow dry air (air with a low moisture content) above the buds, this can reduce the risk of dangerous moulds to almost zero. This is also one of the reasons why growers always manage their best crops during the winter months. The air at this time of the year is particularly dry and that makes it particularly easy for the grower to keep the air moisture levels in his space nice and low. This is a different situation to the Summer months, especially after a heavy rainfall, when it is necessary to get all hands on deck to work and keep the plants protected from high air moisture.

Plastic roof

Nonetheless, a high air moisture does have its place in the grow cycle. During the growth or veg phase, a high moisture content is a good addition to creating the best circumstances. It is well-known that clones in their early life will start developing much more quickly given a high air moisture, and once established grow more quickly in a wet climate. The clones, and once they have matured, the plants, under normal circumstances must pump a lot of water / moisture out themselves in order to keep the air moisture level up. When they do not have to do this themselves, because we have given them a helping hand, then the plants can devote more of their energy to growing and developing their root system. We can do this by from the very beginning making a sort of roof over the clones. We make this roof out of see-through plastic (such as agricultural plastic) and this in turn ensures that the plants hardly have to do any transpiration themselves, since the roof keeps the air with high moisture content trapped among the plants. Keep the positions of the lamps in mind and don't let them get too near the plastic or there is a good chance it will melt.

It is worth emphasising, just to make sure, that you leave the sides open with no plastic hanging down. If you don't then the air moisture can elevate to dangerous levels and you end up creating more of a humid swamp effect, which will hugely increase the chance of mould infections.

Once the clones have had two to three weeks to develop into lovely big ladies and the buds (or the top shoots) are almost pressing against the plastic roof, we remove it. The flower heads of the plants now begin to develop rapidly and so a low air moisture level is preferred, in order to keep the risk of bud rot to a minimum.



In this photo the see-through plastic roof has already been removed. The tensioned strings in the picture served as support for the sail (of see-through plastic).



Once the flower heads have begun to develop, a low air moisture content is very desirable..

Text & photos: Weckels

How to bake a space cake

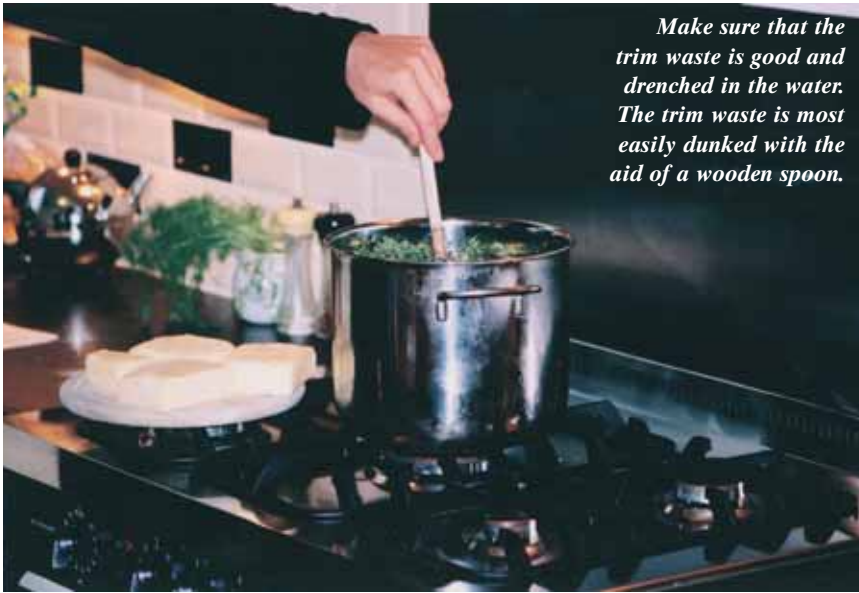
I will be focussing all my attention in this article on how to make a great space cake. For those of you who prefer to eat their intoxicant rather than smoke it in a joint, this article offers a real result. On top of that, space cake has the great advantage that it does not make you feel queasy so quickly, and what's more, it does no damage to your lungs. Often, you will remain stoned for longer by eating space cake than if you had smoked a spliff. This is because all the THC that is ingested via space cake into our bodies is taken up by the bloodstream and so little gets lost. This is not the case when it comes from smoke.



We first carefully weigh the trim waste, before we start out.



Next we fill a large soup pan with water and toss the trim waste in.



Make sure that the trim waste is good and drenched in the water. The trim waste is most easily dunked with the aid of a wooden spoon.



Once the trim waste is good and wet, add the butter to the mixture.



Keep stirring well during the cooking. After about 2.5 to 3 hours on the stove, the trim waste, the water and the butter turn into a green sludge.

Many people still consider eating space cake as dangerous, because you never know if the THC has been evenly distributed through the cake mix. What's more, it also takes a little while before the effects are felt (usually between 60 and 90 minutes) when you've eaten space cake, by which stage you might find yourself incredibly stoned or high. A lot of people have had a poor experience with this because they'd been scoffing back the cake like it was some sort of yummy pudding and end up completely wasted for the rest of the day as a result. There is a certain risk in this for all the greedy guts among us; don't eat too much, certainly not of a good space cake. The number of slices you can gobble, is naturally dependent on the strength of that particular space cake. In this article I'll give you a number of cake recipes and will clearly state the dosages for each. Stick to these guidelines and you are guaranteed a nice, safe trip!

Trim waste

Before we actually get down to making the space cake, the first important thing we have to do is gather together sufficient trim waste. This is actually the most important part of the cake, given how space cake differs from ordinary cake. In contrast to what is stated in many recipes, I almost never use the large leaves of a plant for making a cake from. I prefer to use only the richly THC crystal-covered small leaves. These contain considerably more THC and so we do not need as much to make a good space cake. Were we to set to work using only the large leaves, we would need (a hell of a) large volume with which to achieve the same effect. Having said that, here is an exception to the rule. Some varieties of weed, particularly indoor grown, make so much THC that even the larger leaves are richly sprinkled with it. It is plain for anyone to imagine in this case that the large leaves can be treated the same as the smaller ones regarding THC concentrations.

First off, we let the trim waste and the THC-covered large leaves if we have them, dry out thoroughly. This is important because then we have only to use 20% of the original weight of vegetation. In other words: 80% of the wet trim waste will disappear in the form of moisture when we dry it out. So of course there will be a much smaller volume to cook in the pan. What is more, the dried out trim waste has the big advantage that we can easily store it without risking it going mouldy.

Once we have sufficient trim waste prepared in advance, we can actually get to work. We place a large pan (with a content of about 10 to 12 litres) on a gas hob, electric plate or other heat source and fill the pan with water. Now we weigh out about 100 grams of trim waste and toss this in the pan. Soak the trim waste well in the water, so that it is thoroughly drenched. Now let the trim waste heat up in the water. You will notice that after a little while the water begins to foam. This is how it should be, because the water is almost boiling. Once the water has reached boiling point, reduce the heat a bit so that the bubbling water stays in the pan and does not boil over.



After cooking, pour the mixture through a colander or sieve so that only the liquid is saved.

Now add a lump of butter to the water and the trim waste. If you're using 100 grams of trim waste, add about 400 grams of butter. The butter will slowly melt from the heat and the trim waste, the butter and the water will quickly form a green sludge. At this point it important to keep stirring the pan continuously, so that everything mixes together smoothly.

While you are cooking the trim waste there will be quite a bit of odour given off, something like a cross between spinach and weed. It is not an especially pleasant smell, so you do have to do something about it. Bear the neighbour situation in mind; in some cases it might be worth not switching on the cooker's ventilator hood, when this vents it air for example just outside the wall or near the front door. Otherwise we run the risk of the whole street knowing in the shortest possible time that something cannabis-esque is a-brewing round at your place, from the distinctly hemp-y smell exiting. For the same reason, be a bit sensitive and only cook up your trim waste in an area where you do not suspect someone else (or even you) has their own cannabis garden growing. It is in any case always good to minimise all risks. It does not bear thinking about – that you might have your plantation busted just because you were cooking up a bit of space cake, however nice.

Gaspijje

We can of course also choose to just do it all in peace and cook up the trim waste



The liquid that is left over is coloured a dark brown/black. It is clear that the trim waste was of good quality.

outside on a gas stove, the kind you might take camping. By doing this we have no smell problems indoors and the strongly-smelling odour will rapidly disperse in the breeze. If you do this, make sure you are not too conspicuous and prefereably cook your trim waste in a sheltered spot, free from wind, rain and/or curious neighbours. After all, it would look a little suspicious if you were to be seen in the middle of winter cooking over a gas stove in your garden, and pretty hard to keep your secret recipe to yourself!

Cooking the trim waste, the butter and the water does take quite a bit of time. In total, you should set aside a good 2.5 to 3 hours for the sludge to cook. By doing this you make sure all the THC crystals have broken free of the vegetation. Once the green sludge has cooked for this long, pour the mixture of butter, water and trim waste through a sieve. It is important that you sieve all the trim waste out of the sludge, so that all we're left with is a mixture of water and butter. With a wooden spoon press the remaining moisture out of the trim waste that is left behind in the colander or sieve.

Cooling off

Now we let the pan with the water and the water melted butter quietly cool down. This happens easiest when you place the pan in a cool place, such as in the cellar, the garden shed or in the fridge. Of course, we put the lid on the pan no contaminants can get in. The butter will take the best part of the whole night to cool down fully.

By cooling down the water and butter the THC crystals will attach themselves to the butter and separate out with it, as this begins to re-solidify. The sollidifying butter therefore effectively sieves out the THC crystals from the eater for you. Once the butter has return to a solid, in terms of colour it no looks like butter at all. It is basically a green to brown colour. The trick now is to get the butter as carefully as possible out of the water. This is most easily done by using a sharp knife to scrape the butter of the sides of the pan. Once we have scraped the butter off the side, it can be carefully ladled out of the water with a large spoon. You have to take a bit of care when doing this task, given that we don't want the butter to sink or worse, fall on the floor.



To speed up the setting of the weed butter, we place the soup pan in the fridge. The solidification process can easily take the whole night.

Weed butter

Once the whole process is good and finished, we will have from 400 grams of butter and 100 grams of trim waste ended up with about 300 grams of weed butter. This butter is in fact all we need and forms the base for all kinds of space cakes, bonbons, cookies, bread or pancakes, all of which are intended for getting high on, or indeed getting nicely spaced. In this article I will only deal with baking space cake. The other possibillities of the wonderful weed butter I will certainly return to at a future date. The weed butter will keep fresh for years and this is of course ideal, given that storing a tub of weed butter takes up so little room compared with freezing a whole batch of space cakes. Naturally there is no real need to prepare the weed butter in a complicated recipe for consumption there are even real diehards who just spread their weed butter straight on a piece of toast or a slice of bread, as they find baking a space cake too much of a hassle and / or because they find it nice and tasty to eat simply. I personally prefer to make the effort of making a good space cake, and so I'll now get on with telling you how you can make one.

Keeping butter and weed butter

For making and baking a space cake I always use about 50 grams of weed butter per cake. In my opinion this is the ideal quantity, as long as we have used a decent quality of trim waste for the butter in the



Once the weed butter has solidified, scrape it off the sides of the pan with a sharp knife.



previous preparation process. Naturally the size of the actual cake is also important, but for a normal cake tin (one that will make of about 15 slices) I use about 50 grams of weed butter. Adding more butter than this to the cake is not something I recommend. If you're nicely used to the experience by all means have two slices; this is better than making a really strong cake. What's more, it will also be easier for others (who are maybe not as experienced with hash and weed) to try a slice of the cake, without them immediately feeling as if they've just been shipped off to another planet.

Also keep in mind that you should be careful where you store the space cake and especially the weed butter (since this is more powerful). I'm thinking here of small children and / or other people who might be tempted to innocently take a couple of slices of cake, as this can have severe consequences, if we're not completely meticulous about it. Also be careful if you let a slice of cake fall on the floor that you don't the dog go wolfing it down. Should a dog eat a couple of slices this can be quite dangerous for the animal, even fatal. If you let weed butter fall on the floor, this can be even more serious given how much stronger the concentration of THC is compared to space cake. In short, take good care!

Before we actually make the space cake it is important that we first of all make sure that all ingredients are at room temperature. Also, get the oven on, set at about 160°C and place the grill shelf one notch under the middle of the oven. Just to give you the temperatures of other kinds of oven, set a hot air oven at 140°C and a gas oven at mark 2-3.

Next we can grease the inside of the cake tin with butter and then sprinkle some flour on the fat. We do this so that the space cake with fall easily out of the tin once it has been baked. Once we have completed these short preparations we can begin.

For baking the space cake we use the same pack of cake mix that we would use for any normal cake. A 500 gram pack is enough to make two cakes from. We then add three eggs, 0.5 dl of milk (= four tablespoons) and add butter. Because we are also adding 100 grams of weed butter (for two space cakes) to the mixture, we reduce the quantity of normal butter added by 100 grams. If we did not do this, then the whole mix would be too sloppy and would be tricky to make a decent space cake from as a result. In short, we add to the mix 300 grams of normal butter (instead of 400 grams) and 100 grams of weed butter, so that eventually we are using 200 grams of combined butter in each cake (as we're making two cakes from one 500 gram bag of mix).

For preparing the mix we use an electric food mixer, as I reckon this is many times quicker than beating everything by hand. What's more, using a mixer gives us more certainty that the weed butter is being well distributed throughout the cake mix. By making sure of this we also ensure that each slice of baked cake has the same potency. When we fail to mix the mixture properly and go ahead and bake the space cake, there is a large chance that for example, the first part of the cake has absolutely no weed butter in it and the second part a double concentration. I



With a large spoon we ladle the weed butter out of the water.



Now that the weed butter is ready we can get to work. We first get all the necessary tools ready.



Once the mixer is turning, grease the inside of the cake tin. Doing this will help the space cake slip out of the tin when it is done baking.



Here is what we have been after: a good quality weed butter!



We put the cake mix, 100 grams of weed butter (for two space cakes) and the rest of the ingredients in the food processor.



For a fresh taste we grate the zest of an orange into the cake mixture. A lemon will also do fine.



Once the cake mix is well and truly mixed, pour it into the cake tin. Then smooth the surface down nice and level.



Then we bake the space cakes in the oven.



Here is the end result, a lovely chocolate and a normal space cake. Cake enough for getting spaced for hours!

can assure you that that is anything but pleasant, given that one time you will get nothing off a slice while the next slice will make you totally shit-faced. To prevent this it is therefore really important to mix your cake very well.

Once you have set up the food mixer, toss the normal butter and the weed butter, sugar and vanilla sugar in. Fort a slightly extra taste to your space cake you can add the grated zest of an orange or a lemon to the mix. This gives the space cake a much fresher flavour. Once we have done this, mix all the ingredients to a light-coloured, creamy paste. Then add to the mix the eggs, one by one. Once the last egg has been added, let the mixer run at full speed for a good five minutes. Now it is time to add the cake mix and the milk to the mixture. Once we have added these, we keep mixing until the mixture is really smooth. The cake mixture is now ready to be split into the cake tin(s). Once this is done, smooth out the surface of the mixture with a knife or spatula. In this way we spread the cake mix as evenly (through the cake tin) and the cake will have a lovely, even shape when it's baked.

We leave the cake in the oven for an hour and 15 minutes (= 75 minutes) until it has baked a lovely golden brown. The space cake is done when if you prick the centre with a saté stick or a skewer this comes out clean with no mixture sticking to it. If the cake is done, take it out of the oven and leave it to cool for five minutes before removing it from the tin.

For making a chocolate space cake, my favourite, we also add cocoa powder to the cake mixture and mix this thoroughly in. If I do this I usually leave out the citrus zest. As for how much cocoa, this depends on your own preference. I tend to just go by the colour: the more powder you add, the darker the mixture and the more chocolatey the cake.

Once we have taken the space cake out of the tin, you will see that space cake looks exactly the same as any other cake. This raises the immediate danger of leaving the cake around the place for anyone to take an innocent fancy to without knowing its true nature. There are a lot of people who have tried this just for a joke, by for example allowing an unsuspecting teacher or a bunch of tedious work colleagues to tuck in to a slice of space cake. The result is frequently a totally disoriented teacher, colleague or other selected victim who thinks they are going to die – for several hours. Make no mistake, for people with no experience of marihuana, space cake or whatever form of being stoned, it can be an extremely frightening experience when you do not know what has happened. What's more it is strongly punishable by law and so a great way of allowing a little joke to escalate way out of hand. Being fired from your work and / or being kicked out of school are mild consequences by comparison. Going before a judge will cost you money, reputation and even your liberty, and that is the last thing any of us want. So take my severe warning against messing about with this tuff seriously!

The cold winter months offer a great opportunity to bake space cake. Once you have its making down, there is nothing quite so good as your own baked space cakes!

Basic Growing

The first column in *Soft Secrets*! Recently *HIGH TIMES* magazine and I renegotiated my contract and now I can write for European magazines. I am very happy to write for *Soft Secrets* because they reach more growers than any other magazines in Europe. This column is all about growing! Last year I bought a Nikon D100 digital camera and have been building a digital library. You will see many of these new digital photos on the pages of *Soft Secrets*. So far I have shot many publication quality digital images and am looking for more all the time. Is your garden available to be photographed for the pages of *Soft Secrets*?

Please contact me at jorge@marijuanagrowing.com for questions. I will do my best to answer your questions by return e-mail and/or publishing them in this publication.

Indoor growing is taking off all over Europe. I believe growers are most interested in learning simple time saving growing techniques that they can implement immediately. I will tailor this column to the time of the year, answering questions in relation to climatic conditions. I am writing to growers from northern UK to southern Spain with a lot of climates in between. I will do my best to address all climates and growing conditions.

Summertime Outdoors

This *Soft Secrets* will be in shops in the heat of the summer. Many indoor growers go on vacation this month and next. However, outdoor grow shows are full speed ahead!

Yes, there still time to plant seeds and clones! Plant seeds and clones outside today! Last year in Spain, I planted my small garden in August. The poor plants received only two hours of direct sunlight per day. I still harvested 100 grams of bud from 6 small plants. If plagued by cool northern temperatures, you are in luck. Plant clones outdoors in 20-50 liter pots of light fast-draining soil. I prefer the least expensive fast draining mix I can find on sale. Use soils with lots of peat, coco and perlite. Set plants out on the patio or anywhere they get sunlight from 10:00 until 18:00 for best results. Midday sunlight is much stronger than that of morning or afternoon. If you must keep plants under glass or plastic, remember that about 25 percent of the light will be lost. This is not important in the summertime when vegetative plants need less intense light. Flowering, however, is a different story. In nature, marijuana flowers when the nights get long and the days short in autumn. The sun is lower on the horizon overhead and farther away from the earth. The sunlight is not as intense now as it was when it was high overhead. When your plants are flowering under less intense light, buds do not grow as thick and dense. If they are under glass or plastic, less sunlight is available.

If you are growing in a greenhouse or in containers on a patio, and your plants are at least two months old, you can induce the plants to flower now. If you start today, you will be harvesting ripe buds by the time the next *Soft Secrets* rolls off the press. The technique is simple, but it will take your daily attention. The technique, cover the plants after they receive 12 hours of light every day so that they will receive 12 hours of total darkness every night. Doing this simulates autumn weather and will induce the plants to flower. They will show visible signs of flowering within two weeks. Remember, you have to cover plants every night so

they are "blacked out" and have no exposure to light. You could call this technique "Zero Tolerance."

The easiest way to "black out" a single plant or a few plants is to build a superstructure over the plant. When you build the superstructure, make it bigger than the plant so that when you place a tarp or dark cover over the plant every night, it does not touch the foliage. If the covering touches the foliage, a wound could develop, which will invite insects and pests. And, in the case of inexperienced growers, confuse them!

Darkening a greenhouse can be a little more complex and requires a trip to the greenhouse supply store. If the greenhouse is small, it is easy to toss a cover over the top.

Your local newspaper or city website will have a sunrise/sunset chart. Remember dark is one half hour *after* sunset and one half hour *before* sunrise. For example, if sunrise is at 6:00 and sunset is at 21:00, the daylight hours would be 16 hours even though there is 15 hours between sunrise and sunset. To give plants an even 12 hours of darkness, the plants will need to be covered at 6 PM or from dark until 9:00. As soon as it is dark outside, the plants can be uncovered. Avoid covering plants all night because it will attract insects.

You can also opt to bring plants indoors to induce flowering with darkness. If you decide to move pots, a small hand truck or containers on casters (wheels) makes moving much easier.

Growers in Switzerland would put arc-shaped plastic pipes in the ground over plants. Every night they would drag a tarp across an entire field of cannabis to simulate nighttime. You can use this same principle outdoors in your garden. Build a superstructure over plants and cover them daily to replicate nighttime.

Continue giving plants 12 hours of darkness every night. If you are unable to give them 12 hours of darkness, it is better to give them more than less. Fifteen hours of darkness is better than 10 hours of



Strong roots are the building blocks of a heavy harvest. Clones have been rooting for 10 days and have a strong enough root system for transplanting.



Set seeds on a paper towel on a plate and moisten. Keep evenly moist and warm (25 degrees C). Be very careful the seeds do not dry out or drown in water. In 3-7 days small white roots will sprout from the seeds.



The tip of the sprout on this seedling got a little dry and development was retarded. I planted this seed next to others that did not dry out. The plant this seed produced was always smaller and slower growing than properly maintained counterparts

darkness. Always make errors on the side of darkness.

Start giving plants 12 hours of darkness and 12 hours of light now, and the sunlight will be the most intense. Increased sunlight will make buds form faster and thicker. There are also fewer pests in the middle of the hot summer. Pests and disease tend to attack outdoor plants later in the season when they receive less sunlight.

Smart growers plant more seeds or clones now for a natural harvest in the fall. It is a small investment.

Fertilizer

Change fertilizer to a blooming mix when



Beaming Spanish grower shows off a nameless sativa/indica cross that she grew on her balcony. With a little tender loving care, you can be as successful as this beauty!

inducing flowering. Use a high quality hydroponic formula. Also pay attention to additives and supplements. For example, PK 13-14 (P = Phosphorus, K = Potassium) is one of the supplements that plants really need before flowering. It makes compact strong buds. Other products that promote nutrient uptake will help too.

As always make sure outdoor plants are growing as fast as possible at all times. If



A second-generation (F2) bud of Jack Herer is packed with resin in this Spanish grow room. Beautiful buds like this are also possible during hot weather providing the grow room stays reasonably cool, around 25 degrees C.

they slow down for a day or two, there is a good reason. Usually it is because they are too hot. The ambient air temperature could be too hot, above 30 degrees C., or the soil temperature could be too hot, above 20 degrees C. Soil temperature is rarely a problem when growing in Mother Earth, but containers exposed to direct sunlight cook roots.

Once their needs are met, consistency is what plants want and need. They do not like fluctuations in climate. A large container will make maintenance much easier. Watering will be less often and problems fewer. When irrigating always remember to apply plenty of water. Irrigate with enough water so that at least 20 percent of the water drains out the bottom. For example, I have a one-month-old Sweet Tooth in 40 liters of soil. I water it every other day with four liters of pure water. At least one liter drains out the bottom of the container.

Drainage

Drainage is very important. Drain water carries away the excess nutrients the roots do not absorb. If these nutrients are allowed to stay in the soil, they accumulate to toxic levels in about a month. When toxic levels of fertilizer salts are present in soil or soilless mix, the uptake of many other nutrients is blocked. The excess nutrients block the uptake of necessary nutrients and growth slows.

Nutrient problems occur in the plants several weeks before most growers notice the symptoms in plant foliage. Taking these simple preventative measures will save you lots of problem solving time. Remember, always pay attention to the basics: air, temperature, light, humidity and growing medium. The interrelation between these vital elements will dictate your ability to grow a strong healthy harvest of killer buds! Your plants will also thank you!

Leach plants with at least three liters of water for every liter of soil. Leach plants every month. Flushing containers with lots of fresh water will ensure there is no buildup of excess fertilizer salts. Salt buildup is one of the biggest problems affecting container-grown plants. Take this simple precaution and you will avoid many problems and grow healthier plants.



This smart Dutch grower found that training a fan on ballasts kept them running quieter and cooler. An extraction fan above the transformers removes hot air.

Flush plants outdoors with the hose and continue to fill the container until water flows out the bottom. The water should drain from containers quickly. If water sits on soil surface for more than a minute, it does not drain fast enough. Plant roots do not penetrate super wet soil. If this is the case, remove plant from the container and repot in new fresh fast-draining potting soil. Take care when repotting to break and bruise a minimum of roots. Water with a product containing vitamin B1 and roots will suffer less stress.

Cover plants receiving too much light. If plants receive direct sunlight and temperatures exceed 20 C., covering with shade-cloth will reduce water consumption, overall maintenance and speed growth. Marijuana grows best at a temperature range of 15-20 C. day and 15-20 C. at night. If temperatures go beyond these bounds, extra measures will be necessary to maintain fast growth. The easiest way to promote fast growth is to cool the growing area with shade.

Summer Indoors

Vacations are the biggest impediment to growing this month and next. Everybody is going on vacations. Who do you have take care of your garden? If you



Strings 40 centimeters long hang from reflectors to measure distance between garden canopy and 600w lamps. Do you keep your grow room this clean? This crop produced one gram per watt of electricity during 8 weeks of flowering. The expert Spanish growers harvested the heavy crop last year when temperatures topped 35 degrees C.



Backside of a Blueberry leaf is oozes resin. If you grow for personal stash or commercially, when leaves are packed with resin, there is more top quality smoke overall. Although Blueberry is a little fussy to grow, harvests like this make it worthwhile.



Close-up of a single NYC Diesel bud shows it's distinctive shape and form. This variety is becoming more popular worldwide after winning prizes and marijuana competitions in Europe.

neighbor or friend is going to do it, make sure to have their telephone number so you can check on them. Also leave them a detailed daily list of what to do. If any nutrients need to be mixed, try to have them premixed so your helper has as little to think about as possible.

If you are going on vacation for a month or longer and plan to shut down your grow room, you will need clones when you return. Clonex Root Matrix (available via www.growthtechnology.com) will prove indispensable. This cloning gel starts out as a liquid and turns to a gel. You squirt it into containers, it turns to gel and you place cuttings in it. The cool part is that cuttings will grow roots but grow very little foliage. You can leave clones in the gel for a month or two to be ready for you when you get back. Maintenance is minimal. If you are able to purchase clones, order them before you leave so they will be ready when you return.

Happy holidays!

Jorge Cervantes is the author of *Indoor Marijuana Horticulture: The Indoor Bible* (with 200 ALL NEW color photos), *Marijuana Indoors: Five Easy Gardens*, *Marijuana Outdoors: Guerilla Growing* and hundreds of articles. For more info: www.marijuanagrowing.com. His works are published in Dutch, English, French, German and Spanish.

...for the Most Potent Smoke

Drying and Curing Cannabis

By Jorge Cervantes



Yellow leaves like this usually fall off before harvest. If they are strong and green, leave them on the plant when drying the plant upside down. The leaves will form a protective shield for tender resin glands.

Drying and curing cannabis properly will yield the most THC-potent smoke. When dried and cured improperly, potency can diminish substantially. The level of THC in a plant is determined by its genetics. Proper drying and curing will keep the THC level as high as genetically possible. It does not increase potency. A little background on what happens inside and outside the harvested drying plant will help you understand why proper drying and curing are so important to good quality dope.

Drying evaporates most of the 70-75 percent water content in fresh marijuana. Drying also converts THC from its non-psychoactive crude acid form to its psychoactive pH-neutral form. Once dry, THC-potent marijuana can be smoked and you will get high. Every THC molecule must shed their moisture content before they are fully psychoactive. In other words fresh green marijuana will not be very potent.

When you cut a plant or plant part and hang it to dry, the transport of fluids within the plant continues, but at a slower rate. Stomata, small openings on leaf undersides, close soon after harvest and drying is slowed since little water vapor escapes. The natural plant processes slowly come to an end as the plant dries. The outer cells are the first to dry, but fluid still moves from internal cells to supply moisture to the dry outer cells. When this process occurs properly, the plant dries evenly throughout. Removing leaves and large stems upon harvest speeds drying, however, moisture content within the "dried" buds, leaves and stems is most often uneven. Quick drying also traps chlorophylls and other pigments, starch and nitrates within plant tissue, making it taste "green" burn unevenly and taste bad.



Be very careful when handling leaves and all foliage on mature plants. The rows of resin glands are very easy to bruise and knock off.

Taste and aroma improve when these pigments break down. Slow even drying – where the humidity is similar inside and outside the foliage – allows enough time for the pigments to degrade. Hanging entire plants to dry allows this process to occur over time, about 3-4 weeks at 50-60 percent relative humidity and a temperature range of 60-70 degrees F. (15-21 degrees C.) The large outer leaves also form a protective sheath around buds. This protective foliage shields resin glands on buds from rupture and bruising.

Removing large leaves and stems upon harvest saves time. This is what most growers do, because fresh supple leaves are easier to work with than dry leaves. When you are looking a manicuring 5 kilos, you make it as easy as possible! However, this process often causes uneven drying and keeps moisture inside the foliage. This is why it is important to "cure" the "dry" marijuana.

Curing lets the plants continue to dry slowly. The first week of curing affects potency in that it removes moisture within the bud evenly, so that virtually all the THC is psychoactive. Curing also allows buds to dry enough so that mold does not grow when it is stored. A well-cured bud will also burn with an even glow.

Note:

Rough handling and friction from fondling hands will bruise and knock off resin glands. Even with proper drying and curing, brutal handling of harvested marijuana will diminish THC content.

Drying

Here is one of the best ways to dry plants to retain the maximum amount of psychoactive THC. Cut the entire ripe plant at the base and hang it upside down on a line to dry. Try to keep

plants from touching each other to avoid uneven drying and mold. Keep the humidity between 50-60 percent. Keep the temperature at about 60-70 degrees F. (15-21 degrees C.). The room should be relatively dark as light, especially direct sunlight, degrades THC.

A circulation and ventilation fan may be necessary to control heat and humidity. You can also use a dehumidifier to control humidity or an air conditioner to lower ambient relative humidity and control room temperature. Do not train fans directly on drying plants it causes them to dry unevenly.

Depending upon atmospheric conditions and the size and density of plants and buds, plants should be dry enough to smoke in about a week. Plants with outer "fan" leaves intact take longer to dry than if leaves have been removed.

Check for dryness by bending a stem. It should snap. The bud should be dry to



Close up of Yumboldt from Sagamatha shows delicate white- and amber-colored pistils along with a covering of glowing resin. Careful handling and drying of this crop kept the resin glands intact.

touch, but not brittle. The bud should burn well enough to smoke now.

Once dry, carefully manicure buds by cutting large leaves where they attach to the stem. Leaving the petiole (leaf stem) can cause mold to grow. Snip off smaller leaves that show little resin so that buds a beautiful bud remains.

Freeze Drying

Dry ice is frozen carbon dioxide. CO² changes from its frozen solid to a gas without turning into a liquid, a dry (ice) process that is called sublimation. The atmosphere contains little CO₂. Dry ice sublimates (converts) completely into a gas leaving virtually no liquid. It is dry.

When moist marijuana is enclosed with dry ice at virtually zero relative humidity, water molecules migrate from the cannabis to the dry ice. The relative humidity of the CO₂ increases and the moisture content of the marijuana decreases. This process occurs below 0 degrees C (32 degrees F), preserving the cannabis.

Place equal amounts of dry ice and bud into a container. Dry ice on the bottom and bud on top. Seal with a lid. Make a few small holes in the lid of the container for excess gas to exit. Place in the freezer. Check the dry ice every 24 hours. When the ice is gone, the buds will be completely dry. If not dry, add more dry ice until cannabis is dry. Conserve dry ice by partially drying buds for a few days before enclosing with dry ice.

This method retains potency, freshness and causes very little degradation of resin glands by the bad guys – heat, light, air and fondling hands. The marijuana tastes 'minty' because the chlorophyll does not break down.

Curing

Even though the plants appear to be dry, they still contain moisture inside. This moisture affects taste and potency. To remove this excess moisture, curing is necessary. Curing makes the bud uniformly dry and converts virtually all THC into its psychoactive form.



Another shot of Yumboldt resin glands on a ripe bud demonstrates the importance of post-harvest care. Some growers claim that curing increases potency. The fact is, proper post-harvest care will keep the resin undamaged and not increase potency. It is difficult to improve on perfection!



Any botrytis (bud mold) on buds should be thoroughly removed before drying. Smart growers do not dry buds that have suffered mold attacks with healthy buds. Always isolate buds that have had when drying so that it does not spread to the other drying plants.



This Haze cross grown in Spain was well-handled and carefully dried over a 2.5-week period. It was later cured using the method outlined in the article. Notice how the resin glands are perfectly intact. Treating harvested buds with tender loving care is the best way to retain maximum potency.

Cut stems into manageable lengths – less than 12 inches (30 centimeters) – and place them in an airtight container. Glass containers with a rubber or similar seal on top are the best. Avoid Ziploc plastic bags, which are not airtight. Many growers also avoid plastic containers such as Tupperware, sighting the plastic imparts an undesirable flavor in the buds.

Enclose buds in a container. This creates a microclimate that allows moisture to “even out” within the buds. Internal moisture will migrate to the dry portions of the bud. Gently pack as many buds in the glass container as possible without damaging them. Leave the jar(s) in a cool dry dark place. Check the jar in 2-4 hours to see if buds “sweated” moisture. Check buds by gently squeezing to feel if they are moister than they were a few hours before. Be careful when squeezing buds, they bruise easily. Most often they will be completely dry. If not, leave them in the sealed jar overnight and check the next day.

The buds will be a bit moist. Remove them from the jar and gently lay in the bottom of a paper bag. They can be stacked in the paper bag as high as 10 centimeters (3 inches). Close the top of the bag by folding once. Check the buds

2-3 times during the day to see if they are dry. Carefully turn them in the bag so that different sides are exposed. Remove when they are dry and place back into the sealed glass jar. Check them the next day to see if they are evenly dry and not moist again. If moist, remove and place back in the paper bag until dry. When dry place back in the glass container. Repeat process until buds are evenly dry.

If buds appear to have fairly low moisture content, you may be able to leave them in the jar and let excess moisture escape out the top. Simply open the jar for a few minutes every few hours to let the excess moisture escape before closing the lid again.

Check the container daily, leaving the top open for 5-10 minutes so moisture evacuates. After a week or two, it should be totally dry and ready to seal airtight. Vacuum seal the jar and place it in the refrigerator for storage. Leave it in the refrigerator or a cool dark dry place for a month or longer. The taste and potency will be tops! Refrigeration slows decomposition but remember, refrigerators have a high humidity level, so the container must be sealed airtight. I just checked the relative humidity in temperature in my refrigerator – 65

percent relative humidity and 5 degrees C. (40 degrees F). Do not place it in the freezer. Freezing draws moisture to the surface of buds, which can harm resin glands on the surface.

FAST DRYING

I do not recommend fast drying however here is a brief rundown on several methods for those of you who can't wait.

Method One: Manicure fresh buds. Spread them out evenly and wrap in paper or enclose in an envelope. Place the paper or envelope on top of a warm object – refrigerator, radiator, television, etc. Depending upon heat level, buds will be dry in a few hours to overnight. Buds should be a bit crispy when dry. Place buds in an airtight container until they sweat. Follow curing instructions above.

Method Two: Cut up fresh buds and foliage. Place on a 6-inch (15 centimeter) square of tinfoil. Hold or place it over a 60-80-watt light bulb. Stir every 30 seconds. The weed takes 1-3 minutes to dry.

Method Three: Place cut up buds and foliage on a cookie sheet in an oven at 65 degrees C. (150 degrees F.) for 10-

15 minutes. Check regularly until dry. Follow curing instructions above.

Method Four: Place cut up buds and foliage in a microwave oven. Power the oven to 40-50 percent and give short 5-10 second bursts. Check regularly until dry.

Method Five: Cut fresh buds and foliage into small pieces and place them in a glass jar with an airtight lid. Place several silica gel desiccant packs (the kind that come with electronic devices and cameras) into the glass jar and seal the jar. Moisture will migrate to the silica gel in a few hours. Remove the packets and dry in the sun. Replace silica packs until marijuana is dry enough to smoke. Find silica gel packs at auto parts or electronic stores.

Method Six: Peel stems so they plants dry faster. First remove large leaves. Peel off the outer layer of the stem with a knife. This exposes the inside of the stem and cuts drying time by about 20 percent.

Patient growers smoke no bud before its time!

Note:

Some of the information in this article was extrapolated from the “Frequently Asked Questions” and “Forums” found at www.overgrow.com. The following OG members were sighted in putting together this article: Apollo11Genius, BigIslandBud, Doctor Dangerous, Fatima, Fergetit, Flick, Glass Joe, HashMan, Leaf, Lock, Lord of the Strains, Mr. Beaner, PREMIER, Psychotropic Nomad, SC, and Twofingered. Thanks for the help!

Jorge Cervantes is the author of *Indoor Marijuana Horticulture: The Indoor Bible* (with 200 ALL NEW color photos), *Marijuana Indoors: Five Easy Gardens*, *Marijuana Outdoors: Guerilla Growing* and hundreds of articles. Cervantes writes for 12 magazines in 5 languages. See: www.marijuanagrowing.com.

COLUMN

Frankenstein science

Dr. John Dee

A number of years ago I was working on a cannabis project. By this I mean that my colleague and I ran about the UK asking people about their dope use. We spoke to hundreds of people who had been using weed for at least a decade, and there were very few of them who could imagine life without dope, and therefore couldn't ever imagine giving it up. The majority of them (in fact, almost all of them) had used a whole range of other drugs at one time or another over the course of their lives, but dope remained the constant (if you ignore tobacco and alcohol, that is): they'd been using it for however many years and, as far as they were concerned, they'd continue to do so and nothing would get in the way of that.

Jump forward to 2004, and suddenly the unthinkable is starting to happen: a lot of people with whom I'm acquainted are seriously considering either taking a break from the weed or giving it up completely.

This is an intriguing development. Lifelong, hard-core tokers deciding to give it up. What could be happening? Could it be to do with the cost of decent

weed? The supply? Or maybe it's down to a fear of being caught and going to prison?

Anecdotally, the answer seems to be that it's none of these. As far as cost goes, for example, it's accepted that it's a seller's market and therefore you pay the asking price or grow your own. With supply, no amount of big, high profile seizures have had any impact on availability at all. And the chances of going to prison for possession of a few grams of skunk are pretty remote.

So what is happening?

The reason I've been quoted when I've asked people about this is that quite simply, weed is getting too strong for every day consumption even by seasoned tokers: one can indeed, it seems, have too much of a good thing.

The plant has been hybridised, tweaked and generally subjected to Frankenstein science, and turned from one thing (something natural growing straight out of the ground) into something altogether different and getting to be less and less recognisable. The THC content of some of these new strains of weed is (allegedly) pushing the 25% - 30% mark, which is a far cry from the 3% - 10% range found in plants left to develop au naturelle. Not only is this unnatural, there would appear to be some concerns on the part of some long term users as to its safety.

In the end, it's a variation on a mental health theme with the potential quitters. Either they're encountering a number of unfamiliar and unpleasant effects such as instant and acute paranoia, panic and “bad thoughts”, or they're seeing old and good friends walking around “like zombies”. Of course, whether any of this is actually due to the weed won't be known without a program of scientific research, but nonetheless, a word to the wise: approach with caution.

You would think that the easiest way round this would be to buy a different type, but as the current vogue seems to be the stronger the better, this is getting difficult. Nobody seems to grow nice grass that gives a nice buzz any more: these days it's all different degrees of being hit over the head with a hammer. Or that's how it feels. And of course, as the only real alternative to high potency weed is adulterated gangster resin, swapping brands isn't really an option.

What really bothers me is that if very experienced users are finding these strains heavy going, what effect are they having on adolescent brains? Personally, I don't like scare stories, but this particular issue needs to be addressed before it comes back in the future and bites us on the arse.

dimethyltryptamine777@hotmail.com



Hydro-Organic

Hydro-organic, rolls off the tongue like a fatty ready for fire. But hydro-organic? Isn't that an oxymoron? How can you merge hydroponic gardening, known for high yields using exacting amounts of chemical fertilizers, with organic fertilizer?

The term hydro-organic combines two words: hydroponic and organic. Hydroponic gardening is growing plants without soil and feeding them with a liquid nutrient solution. An organic substance contains a carbon molecule, or is or was once living. Organic fertilizers are any fertilizer that contains a carbon molecule or a natural substance that has not been altered from its natural state. Hydro-organic gardening is growing plants without soil and feeding them with an organic nutrient solution.

Most hydroponic systems use a growing medium to support the plant and roots. The growing medium is similar to soil except it contains no nutrients that are released biologically or via chemical

processes. If you are growing in a sterile soilless mix containing no nutrients and fertilizing with soluble organic fertilizer, you are growing hydro-organically.

Why grow hydro-organic? Fertilizer control and the sweet, sweet taste of organic bud are enough reasons to convince discriminating growers. Since most crops are grown indoors in less than 90 days, there is little time for non-soluble organic nutrients to interact and become available to plants. Indoor growers induce flowering by changing the light from 18-hour days to 12-hour days. Six to ten weeks later juicy female buds are harvested. That's a short time for lots of biological organic activity. During the life cycle of the plant, their nutrient needs change. Seedlings need higher levels of phosphorus and potassium. Vegetative plants use more nitrogen and flowering buds require more phosphorus. Organic fertilizers release nutrients at different rates and it is very difficult to calculate how much is being released. Organic fertilizers also tend to



You can fill grow bags with soilless mix and irrigate with an organic nutrient solution and grow sweeter tasting buds.

be very bulky and mix with water poorly. Yet when mixed and applied properly, soluble organic fertilizers are readily available and grow great dope.

To deliver the exact balance of organic nutrient solution to plants automatically, the hydro-organic system is more complex. Unless you choose a ready-made soluble organic fertilizer from one of the following companies: Canna, Bio Biz, Atami, etc., you will have to experiment to find the exact combination of nutrients to grow the fattest bud.

Measuring exactly how much soluble organic nutrient is diluted in a reservoir is difficult. Chemical fertilizer manufacturers easily mix exact amounts of each chemical into specific formulas tailored to different stages of growth: seedling, vegetative and flowering. For example, the compound, calcium nitrate, contains both calcium and nitrogen. In pure chemical form, this compound is easy to analyze and know exactly how much nitrogen and calcium per weight and how much to add to a nutrient solution to achieve the desired level. Organic nutrients are much more complex in structure and very difficult to measure exact nutrient content. They are also difficult to retain consistent. For example, the nutrient content of the organic "super bloom", soluble bat guano varies greatly and it contains many different nutrients. The diet and health of the bats, the age of the guano, weather conditions and climate all contribute to the nutrient content.

How do you overcome this minor technical difficulty? Buy a premixed soluble organic fertilizer or buy several organic fertilizers and mix them to make your own blend. Either way, you will have to experiment to get the perfect mix for your system and strain of cannabis. Any grower that has experimented with fertilizer mixes knows that adding too much can either lock nutrients up, making them unavailable or burn plants. The result is the same, slow growth and less smoke.

Like chemical soluble fertilizers, soluble organic fertilizers can be flushed out of the system if overdone. Organic fertilizers can build up to toxic levels just like chemical fertilizers. Signs of toxic fertilizer buildup or over-fertilization include burned leaf tips, curled down



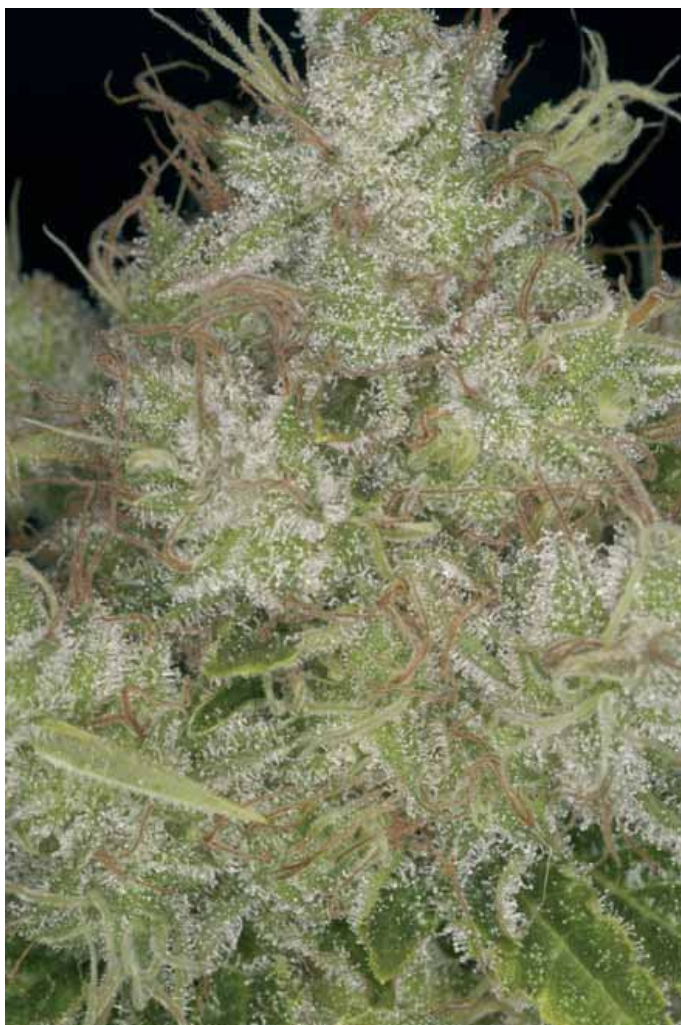
This Canadian grow room uses Supernatural Grow Bags in an organic soil and nutrients. Although not technically hydroponic, it uses an overhead hydroponic irrigation system.

leaves, brittle leaves, and super dark green leaves. If you see any of these signs of over-fertilization, flush soilless hydroponic mix with at least two gallons of plain water for each gallon of nutrient solution. Flushing excess nutrients out of a system is very important to have great-tasting dope. Many North American growers flush their entire crop with plain water for the last two or three weeks of flowering to expel any accumulated fertilizer, which affects taste, from the bud.

A good base mix to start seedlings and cuttings is a balanced seaweed mix that contains all macro nutrients (nitrogen, potassium and phosphorus), secondary nutrients (calcium and magnesium) and trace elements. The nitrogen, potassium and phosphorus (NPK) percentages are printed on the front of fertilizer containers. Look for a fertilizer starter mix that contains 1-2 percent N, 2-4 percent P, and 3+ percent K. This mix will supply all the nutrients necessary for the first 3-4 weeks of growth. Many growers add growth enhancers (additives) now such as Rhizotonic or Cannazym biocatalyst. Check with your local grow store for recommendations.

Nitrogen keeps vegetative growth green and is used heavily during vegetative growth. Good sources of nitrogen include worm castings seabird guano, alfalfa meal and fish emulsion.

Flowering fertilizer has higher levels of phosphorus (P) and potassium (K). Bat guano, the organic super bloom, has sufficient levels of nitrogen to keep plants green, but most importantly, high levels of potassium and phosphorus to stimulate flower bud growth.



Growing buds like this resin squirting beauty organically in hydroponics is easiest when using tried and true professional organic fertilizers.

Making Organic Tea

Mixing organic tea is as easy as pouring poop into a reservoir of water and straining. Organic fertilizer tea mixes contain soluble organic nutrient diluted in water. Fish emulsion is the most readily available commercial organic tea. Liquid seaweed is an essential source of trace elements. Soluble worm castings and manures are high in nitrogen and bat guano is high in phosphorus. These materials and others listed make excellent U-mix organic teas singly or in combinations.

Mix the organic nutrient(s) in water and let them sit from one day to a month. Stir the solution again, and strain out the large particles by pouring the solution through cheesecloth or an old nylon stocking before applying. Adequate straining will keep irrigation nozzles from clogging.

Mix organic nutrients below and try to achieve the following ratios:

1-2 percent Nitrogen
2-4 percent Phosphorus
3+ percent Potassium

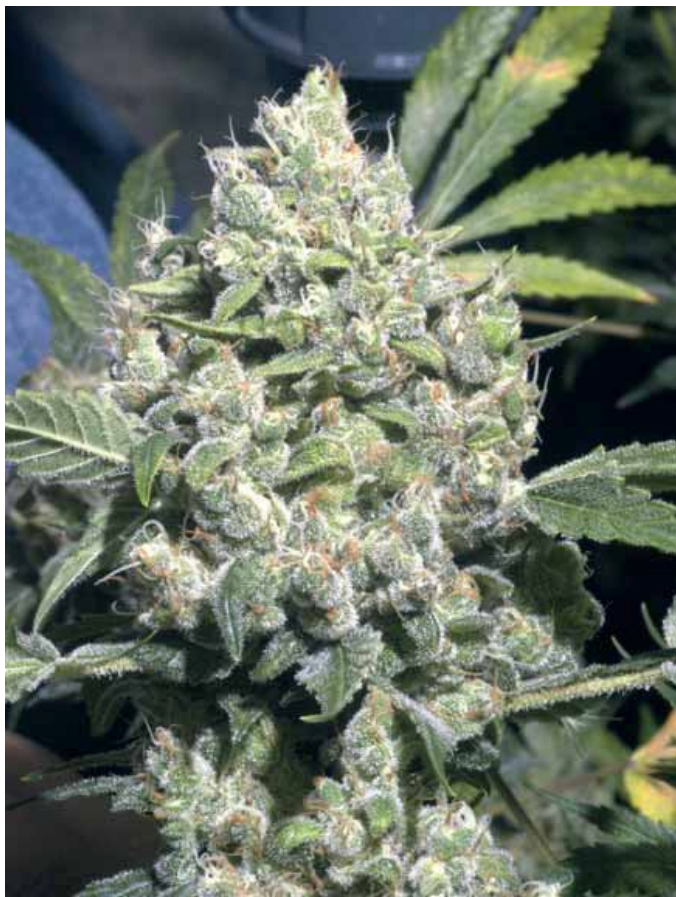
Alfalfa hay contains about 2.5 percent nitrogen, 0.5 percent phosphorus, and 2.0 percent potash. Purchase alfalfa hay from a feed store where it is also available as pellets or meal. Alfalfa pellets and meal are less bulky and convenient to make into a hydroponic tea.

Blood (dried or meal) is collected at slaughterhouses, dried and ground into a powder or meal. It is an excellent source of fast-acting soluble nitrogen (12 to 15 percent by weight), about 1.2 percent phosphorus, and under one percent potash. Apply blood meal to stimulate green leafy growth. Blood meal can burn plant foliage if applied heavily. Dogs and cats love to eat blood meal and keeping it out of their reach will make it last longer. It is an excellent ingredient for a tea mix.

Chicken manure is a favorite because it is so high in nitrogen. Manure from caged laying hens is generally higher in nitrogen than that from broiler chickens.

Some chicken manure is full of feathers that contain as much as 17% nitrogen which is an added bonus. The average nutrient content of wet chicken manure is: N - 1.5%, P - 1.5%, K - 0.5%. Dry chicken manure: N - 4%, P - 4%, K - 1.5%. Both have a full range of trace elements. Beware of using fresh chicken manure as a fertilizer because it can burn the plants. Mix chicken manure in a tea.

Cow manure commonly sold as "steer manure" but may be collected from dairy herds. Modern day "steer manure" that is collected from animals in the tight quarters of feed lots may have a high salt content. Some tests on bagged steer manure showed that it contained from 5 to 9 percent soluble salt content by dry weight. If applied heavily, that's enough salt to stunt or even kill plants. Manure collected from outdoor stock yards where the rain has had a chance to leach it out contains fewer salts and is preferable. The average nutrient content of cow



Beautiful Snow Ball bud is always a hit in organic gardens!

manure ranges from 0.6-0.3-0.3 to 2-1-1 and also includes a full range of trace elements.

Fish meal, a solid by-product of the fishing industry, is made from dried fish that is ground into a meal. It is rich in nitrogen (about 8 percent) and contains around 7 percent phosphoric acid and many trace elements. It has an unpleasant odor and good ventilation is necessary indoors. Always store in an air tight container so that it will not attract cats, dogs, and flies. Use in a tea mix.



Hydro-organic flood systems require very little maintenance. The nutrient solution floods in from below and is absorbed by roots in 2-3 days.

Fish emulsion, a liquid by-product of the fishing industry, is an inexpensive soluble liquid high in organic nitrogen, trace elements, and some phosphorus and potassium. This natural fertilizer is more difficult to over-apply and is immediately available to plants. Fish emulsion may be diluted with water, made into a tea and used as a foliar spray, but may clog small nozzles if mixed too rich. To prevent clogging, strain after mixing. Even deodorized fish emulsion smells.

Bat Guano consists of the droppings and remains of bats. It is rich in soluble nitrogen, phosphorus, and trace elements. The limited supply of this fertilizer and the expense of collection make it somewhat expensive. Mined in sheltered caves, guano dries with minimal decomposition. Newer deposits contain high levels of nitrogen and are capable of burning if applied too heavily. The more popular older deposits are high in phosphorus and make an excellent fertilizer for flowering plants. Bat guano is usually



This savvy grower filled in the entire growing bed with containers, since there is less maintenance with an organic flood system garden.

powdery and diluted in a tea or used as a foliar spray. Do not breathe the dust when handling; it can cause nausea and irritation.

Sea Bird Guano is high in nitrogen and other nutrients. The Humboldt Current along the coast of Peru and northern Chile keeps rain to a minimum and, therefore, decomposition of the bird guano is minimal. The guano is scraped off the rocks of arid sea islands. The average dose for garden

use is 1 tablespoon per gallon of water. Guano is also collected from many coastlines around the world.

Horse manure is readily available from horse stables and race tracks. Horse manure should be composted for two months or more to kill weed seeds. The nutrient content of horse manure is: N - 0.6%, P - 0.6%, K - 0.4%, and a full range of trace elements. Use in a tea mix.

Rabbit manure is also excellent fertilizer but is difficult to find in large quantities. Use rabbit manure as you would chicken manure.

Seaweed meal or kelp meal is harvested from the ocean or picked up along beaches, cleansed of salty water, dried, and ground into a powdery meal. It contains potassium (potash), numerous trace elements, vitamins, amino acids, and plant hormones. The nutrient content varies according to the type of kelp and its growing conditions.

Seaweed (liquid) contains nitrogen, phosphorus, potash, plant hormones, and all necessary trace elements in a chelated form (water-soluble). Mix in a fertilizer tea. Apply a dilute solution as a foliar spray for a quick cure of nutrient deficiencies. Liquid seaweed is also great for soaking seeds, and for dipping cuttings before planting.

Swine manure has a high nutrient content but is slower acting and wetter than cow and horse manure. The average nutrient content is 0.6-0.6-0.4 with a full range of trace elements.

Wood ashes (hardwood) supply up to 10 percent potash and softwood ashes contain about 5 percent. Potash leaches rapidly, so collect ash soon after burning and store in a dry place.

Worm castings are the digested humus excreted by earthworms and contain varying amounts of N-P-K. They are an excellent source of non-burning, readily available nitrogen. Worm castings also promote fertility and soil structure. Mix in a fertilizer tea blend.

Zoo Doo, a fertilizer made from the composted manure and bedding from grazing animals at city zoos. The best and most abundant zoo manure, found in the elephant cages, is similar to cow manure in nutrient content. If you get fresh manure from a zoo, compost it until it has heated and cooled to keep weed seeds from sprouting and to keep it from burning plants when it is applied.

Jorge Cervantes is the author of the ALL NEW Indoor Marijuana Horticulture: The Indoor Bible, with 200 ALL NEW color photos, Marijuana Indoors: Five Easy Gardens, Marijuana Outdoors: Guerrilla Growing and Jorge's Rx, and is contributor to 12 European magazines in 6 languages. Jorge's books are published in Dutch, English, French, German and Spanish. Visit his website at www.marijuanagrowing.com



Pruning and bending

or how to FIM (Fuck, I Missed!)

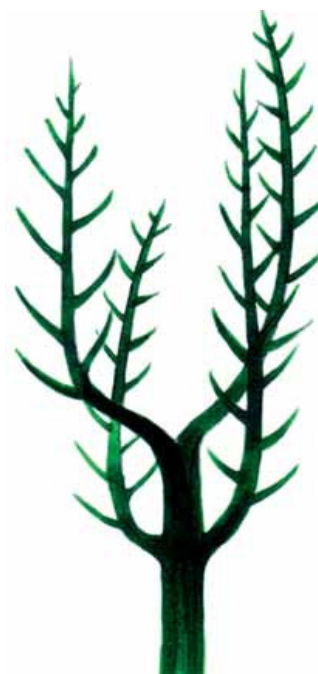
Pinching back or pruning tops (branch tips) causes the two growing shoots just below the cut to grow stronger and bigger. This increases the number of top or main buds. Pruning tops also diffuses floral hormones. These hormones (auxins) prevent the lateral buds from growing very fast. All lower branches develop more rapidly when the terminal bud is removed. The further a branch is from hormones at the plant tip, the less effect the auxins have.

To pinch back a branch tip, simply snip it off below the last set or two of leaves. Pinching off tender growth with your fingers helps seal the wound and is often less damaging to plants than cutting. When the main stem is pinched back, side and lower growth is stimulated. When all the tops are pinched back, lower growth is encouraged. Continually pinching back, as when taking clones from a mother, causes many more little branches to form below the pruned tips. Eventually, the plant is transformed into a hedge-like shape. Most growers do not pinch plants back, because it diminishes the yield of prime, dense tops; but it may not affect the overall weight of dried smoke.

Supercropping is a form of pinching back or pruning branch tips. We are not sure who or when the term or buzzword was coined. We do know that there are several different versions of supercropping "invented" by innovative growers.

Supercropping can also incorporate FIM pruning which is explained below. It can be combined with bending, too. Some people go to the point of mutilating plants by breaking branches a few inches below main buds. Removing healthy leaves so that "budding sites get more light" is also practiced by some supercroppers. See "Stress" below for more information.

Pruning all the branches or removing more than 20 percent of the foliage in a short time frame stresses plants too much and diminishes harvest. But if taking clones, some growers effectively prune a mother down to stubby branches and let her recuperate for a month or longer. Pruning too much over time may alter hormonal concentrations, causing spindly growth. This is often the case with mother plants that provide too many clones. The mother must rest and gain girth, because small, spindly branches root poorly.



Floral hormones are concentrated in four main branches

Remove all but the four main branches. The meristem (central stem) is removed just above the four lowest (main) branches. Removing the central leader concentrates the floral hormones in the four remaining branches. Fewer branches are stronger and bear a larger quantity of dense, heavy flower tops. Remove the stem above the four main branches; do not remove leaves on the main branches. Select plants with three sets of branch nodes about six weeks old, and pinch or prune out the last set of nodes so that two sets of branches remain. Move plants into the flowering room when they are about 12 inches tall. 'Skunk #1' and similarly robust bloomers should be set in the flowering room when about six to eight inches tall.

FIM Technique



This drawing shows the traditional method to top a plant. The entire growing shoot just below the bud is removed. When the entire growing shoot is removed, the two buds located directly below the cut grow faster and stronger. The drawing in the center and the close-up on the right show the FIM pruning technique – the bottom ten percent of the bud remains intact. This is the key to FIM pruning. Many different flowering tops form as a result of this single pruning. According to FIM aficionados, terminal buds put on much more weight and are more dense.

The **FIM Technique** was coined by an anonymous grower from South Carolina. The technique has become legendary on www.overgrow.com, ever since the grower wrote: "this pruning technique could revolutionize indoor gardening." The South Carolina grower tried to pinch the tip of a plant and said "Fuck, I Missed!" when he did not remove the entire bud and coined the acronym FIM.

Bending

Bending is similar to pruning, in that it alters the flow of hormones. Bending efficiently neutralizes the effect of the growth-inhibiting hormone. Bending is much easier on plants than pruning. To bend, lean a branch in the desired direction and tie it in place. Branches can take a lot of bending before they fold over or break. Even if a branch folds, tie it in place; if necessary, use a wooden splint. The stem will heal itself. Young, supple branches take bending much better than old, stiff ones. Bending branches horizontally will encourage the buds to grow vertically towards the light. Each bud will turn into an impressive top, because they all receive more light. A wooden planter box with a lattice trellis alongside makes a great anchor to tie bent plants to.

Wire ties, the kind used to close bread sacks, can be purchased at a nursery. Wire ties are either pre-cut or cut to length by the grower. Plastic-coated electronic and telephone cable wire also work well. They are fastened with a simple twist and stay rigid, leaving the stem breathing room. But if applied too tightly around a stem, the liquids cannot flow, and death could result.



Bending plants will give them a low, inconspicuous profile

Be gentle when bending, even though cannabis can take much abuse. Sometimes a crotch will separate or a branch will fold over, cutting off fluid flow. These mishaps are easily fixed with a small wooden splint snugly secured with wire ties or duct tape to support the split and broken stem.

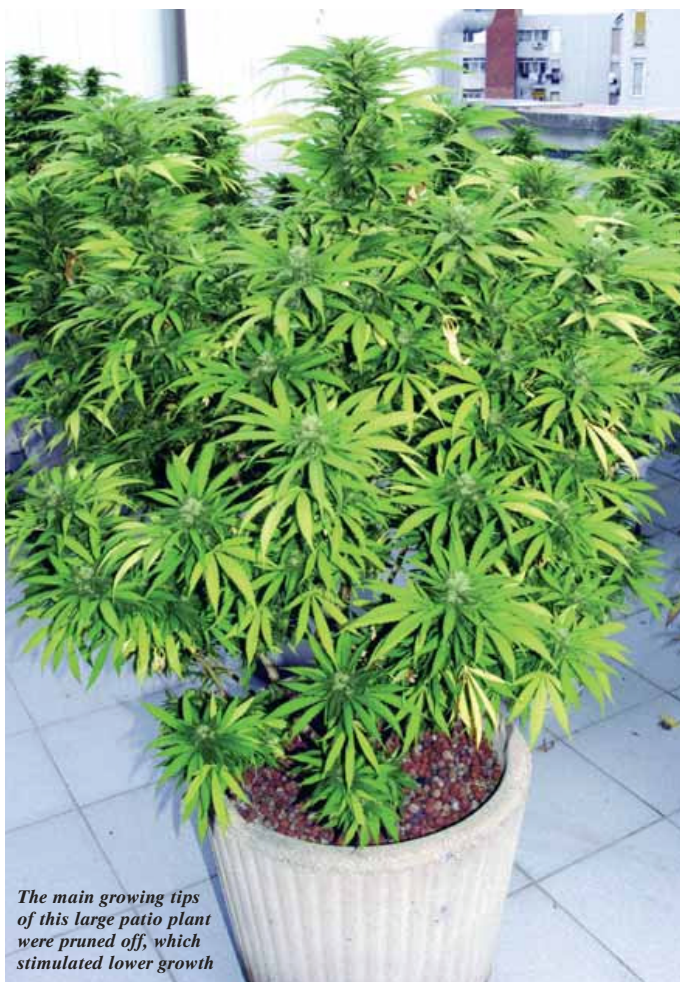
Growers also combine bending and pruning. It is easy to prune too much, but it is hard to over bend.

Air Pruning Roots

When roots grow to the end of the container and are exposed to air, they stop growing. The air naturally prunes roots. They cannot grow out the end of the pot, because the climate with little moisture and lots of air is too inhospitable.

Root Pruning

Root pruning could be necessary to give new life to potbound plants outdoors or



The main growing tips of this large patio plant were pruned off, which stimulated lower growth

in greenhouses. Removing roots will not make plants grow faster; in fact, it will slow growth for about two weeks. Once new roots start to grow, growth rebounds. About mid-summer, root-prune plants that must stay in the same size container. Root pruning will keep plants manageable and much easier to maintain.



Roots on these clones grow through the drainage holes. Once they hit the air, growth stops. Roots are "air pruned."



Two plants growing in this ten-gallon (38L) pot have been trained to grow along a wall just out of the neighbor's field of vision.



Bending branches lowers the garden profile and allows sunshine to reach smaller buds

Chemical Root Pruning

Chemical root pruning is an excellent way to control root growth inside containers. Commercial nursery people have been using chemical root pruning for many years with outstanding results. This passage is condensed from an excellent FAQ article on chemical root pruning with great photos by Uncle Ben at the following link <http://www.overgrow.com/growfaq/1321>.

Uncle Ben used a product called Griffin's Spin-Out that consists of copper hydroxide suspended in a carrier. To use, simply spraypaint the inside of the containers with two coats of Griffin's Spin-Out. Roots grow to within a fraction of an inch



of the copper hydroxide, then stop and turn! Roots will not touch the unpleasant compound. The result is similar to what happens aboveground when new, lower growth is stimulated as branch tips are pruned. When pruned with copper hydroxide paint, more roots develop overall, and they grow in the *entire* root ball, especially in the center. Plants with a dense root system dispersed evenly throughout the root ball are easier to maintain, and they grow bigger in smaller containers.



THREE VEGETATIVE GROWTH

The roots in this potbound plant form a mass around the interior and bottom of the container. Roots that grow out drainage holes are "pruned" when they come into contact with air. This plant needs repotting.



To remove large plants from containers, use a knife or blade to separate roots from the inside of the container. Move the blade up and down all the way around the inside of the container to break roots away. Remove the root ball from the container.

Jorge Cervantes is the author of the ALL NEW *Indoor Marijuana Horticulture: The Indoor Bible*, with 200 ALL NEW color photos, *Marijuana Indoors: Five Easy Gardens*, *Marijuana Outdoors: Guerrilla Growing* and *Jorge's Rx*, and is contributor to 12 European magazines in 6 languages. Jorge's books are published in Dutch, English, French, German and Spanish. Visit his website at www.marijuanagrowing.com

Did you know that after being grassed up, the most common reason why growers get busted is due to water- or odour-nuisance? Both problems are in actual fact very easy to prevent, provided that the grower goes about his work with proper attention. Always build a 'pond' (out of synthetics material or plastic) around your entire grow room, so that any water released during even the worst disaster cannot flow away, and always make sure that you have good filters fitted and sufficient air extraction capacity.

Did you know that Purple Power plants produce purple buds when grown outdoors? The flower heads are turned purple by the usually colder autumn air. What's funny is that when you grow this variety under artificial light, the buds turn out looking totally different (because this light doesn't send them purple).



Spider Mites



Young spider mites, adults, and eggs are visible in this photo.



Spider mites cause stippling, small spots, on the top of leaves.



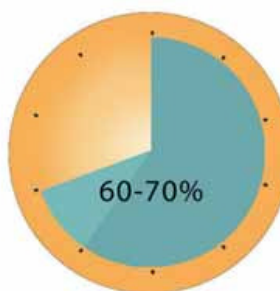
This is the worst spider mite infestation I have seen!

Identify: The spider mite is the most common pest found on indoor plants and cause the most problems. Spider mites have eight legs and are classified as spiders rather than insects, which have six legs. Find microscopic spider mites on leaf undersides sucking away life-giving fluids. To an untrained naked eye, they are hard to spot. Spider mites appear as tiny specks on leaf undersides; however, their telltale signs of feeding – yellowish-white spots, stippling – on the tops of leaves are easy to see. Careful inspection reveals tiny spider webs – easily seen when misted with water – on stems and under leaves as infestation progress. A magnifying glass or low-power microscope (10-30X) helps to identify the yellow-white, two spotted brown or red mites and their translucent eggs. Indoors, the most common is the two-spotted spider mite. After a single mating, females are fertilized for life and reproduce about 75 percent female and 25 percent male eggs. Females lay about 100 eggs.

Damage: Mites suck life-giving sap from plants, causing overall vigor loss and stunting. Leaves are pocked with suck-hole marks and yellow from failure to produce chlorophyll. They lose partial to full function, and leaves turn yellow and drop. Once a plant is overrun with spider mites, the infestation progresses rapidly. Severe cases cause plant death.

Control: Cleanliness! This is the most important first step to spider mite control. Keep the grow room and tools spotless and disinfected. Mother plants often have spider mites. Spray mothers regularly with miticides, including once three days before taking cuttings. Once mite infestations get out of control and miticides work poorly, the entire grow room will have to be cleaned out and disinfected with a pesticide and 5 percent bleach solution. Steam disinfection is also possible but too difficult in most situations.

Humidity



Cultural and physical: Spider mites thrive in a dry, 21-26 °C climate, and reproduce every five days in temperatures above 26 °C. Create a hostile environment by lowering the temperature to 15 °C. and spray foliage, especially under leaves, with a jet of cold water. Spraying literally blasts them off the leaves as well as increases humidity. Their reproductive cycle will be slowed, and you will have a chance to kill them before they do much damage. Manual removal works for small populations. Smash all mites in sight between the thumb and index finger, or wash leaves individually in between two sponges. Make sure to not infect other plants with contaminated hands or sponges.



Remove leaves with 50 percent or more damage.

Remove leaves with more than 50 percent damage and throw away, making sure insects and eggs do not reenter the garden. If mites have attacked only one or two plants, isolate the infected plants and treat them separately. Take care when removing foliage not to spread mites to other plants. Severely damaged plants should be carefully removed from the garden and destroyed.

Smear a layer of Tanglefoot™ around the lips of containers and at the base of stems to create barriers spider mites cannot cross. This will help isolate them to specific plants. Note: smear a layer of Tanglefoot™ at each end of drying lines when hanging buds to contain spider mites. Once foliage is dead, mites try to migrate down drying lines to find live foliage with fresh, flowing sap.

Biological: *Neoseiulus (Amblyseius) californicus* and *Mesoseiulus (Phytoseiulus) longipes*, are the two most common and effective predators. *Phytoseiulus persimilis*, *Neoseiulus (Amblyseius) fallacius*, *Galendromus (Metaseiulus) occidentalis*, *Galendromus (Typhlodromus) pyri* predators are also available commercially.

When properly applied and reared, predatory spider mites work very well. There are many things to consider when using the predators. First, predators can eat only a limited number of mites a day; the average predator can eat 20 eggs or 5 adults daily. As soon as the predators' source of food is gone, some mites die of starvation while others survive on other insects or pollen. Check with suppliers for release instructions of specific species. A general dosage of 20 predators per plant is a good place to start.

Predatory mites have a difficult time traveling from plant to plant, so setting them out on each plant is necessary. Temperature and humidity levels are important to control so predators thrive. Both must be at the proper level to give the predators the best possible chance. When spider mites have infested a garden, the predatory mites cannot eat them fast enough to solve the problem. Predatory mites work best when there

Did you know that Purple Power (PP) is one of the best-known and most-cultivated outdoor varieties? Sadly, in recent years it has been so heavily grown that the price it can command has fallen into the cellar! The weed is easily recognised by its purple colour.

Progressive Control Measures for Spider Mites

Cleanliness: Clean room daily, disinfect tools, do not introduce new pests into the garden on clothes, no animal visits, etc.

Create hostile environment: Humidity, temperature, water spray

Create barriers: Smear Tanglefoot™ around pot lips, stems, drying lines

Dip cuttings and vegetative plants: Dip small plants in pyrethrum, horticultural oil, neem oil

Remove damaged foliage: Remove foliage more than 50 percent damaged

Introduce Predatory mites: Release predators before infestations grow out of hand

Spray: Apply pyrethrum, neem oil, use stronger miticides only if necessary. Rotate sprays so mites do not develop immunity.

are only a few spider mites. Introduce predators as soon as spider mites are seen on vegetative growth, and release them every month thereafter. This gives predators a chance to keep up with mites. Before releasing predators, rinse all plants thoroughly to ensure all toxic-spray residues from insecticides and fungicides are gone.

The fungus, *Hirsutella thompsonii*, trade name Mycar®, kills spider mites.

Sprays: Homemade sprays often lack the

strength to kill infestations but work as a deterrent by repelling mites. Popular homemade sprays include Dr. Bonner's Soap, garlic, hot pepper, citrus oil, and liquid seaweed combinations. If these sprays do not deter spider mites after 4-5 applications, switch to a stronger spray: neem oil, pyrethrum, horticultural oil, or nicotine sulfate, cinnamaldehyde.

Insecticidal soap does a fair job of controlling mites. Usually two or three applications at 5-10 day intervals will do the trick.

Chemical Insecticides and Miticides

Chemical:	Trade Name*:	Author's Notes:
abamectin	Avid®	Produced by soil fungi, <i>Streptomyces</i> species
dienochlor	Pentac®	Slow-acting but selective against mites
aldicarb	Temik®	Systemic miticide DO NOT USE
methomyl	Subdue®	Systemic insecticide DO NOT USE
dicofol	Kelthane®	Selective miticide, DDT relative, DO NOT USE
acephate	Orthene®	Systemic miticide/insecticide, DO NOT USE

*All trade names are not included. Check insecticides and miticides for chemical name.

Horticultural oil smothers eggs and can be mixed with pyrethrum and homemade sprays to improve extermination.

Pyrethrum (aerosol) is the best natural miticide! Apply 2-3 applications at 5-10 day intervals. Pyrethrum is the best control for spider mite extermination. Spider mites should be gone after 2 or 3 applications at 5-10 day intervals, providing sanitary-preventative conditions are maintained. Eggs hatch in 5-10 days. The second spraying will kill the newly hatched eggs and the remaining adults. The third and subsequent applications will kill any new spider mites, but mites soon develop a resistance to synthetic pyrethrum.

Neem oil works great!

Heavy-duty chemical miticides are available but are *not* recommended on plants that will be consumed by humans.

If using any chemical miticide, be sure it is a contact poison and not systemic. Use StirrupM®, described below, to improve the spider mite kill rate. *Cinnamaldehyde* extracted from *Cinnamomum zeylanicum* kills mites. The synthetic hormone – sold under the brand name StirrupM® – attracts spider mites, and is used very successfully to enhance miticides.

Jorge Cervantes is the author of the ALL NEW Indoor Marijuana Horticulture: The Indoor Bible, with 200 ALL NEW color photos, Marijuana Indoors: Five Easy Gardens, Marijuana Outdoors: Guerrilla Growing and Jorge's Rx, and is contributor to 12 European magazines in 6 languages. Jorge's books are published in Dutch, English, French, German and Spanish. Visit his website at www.marijuanagrowing.com

Did you know that Top 44 takes exactly 44 days to finish blooming? This lady also has a short bloom period and thanks to this is very well loved among commercial growers. A short bloom period means they can get in more harvests each year!

PRODUCT FLASH



Atami stone wool mixed-fibre technology

Stone wool blocks are available all over the place, to anyone that wants them, in any size they want. They're handy for letting your clones root in or for germinating seeds in. Thanks to the airiness of the stone wool medium seeds germinate very quickly in them and within a few days of planting you will already be seeing them pop up. I choose

this medium over the traditional germination methods because the seeds stay nice and moist but never too wet. Keeping the seeds too wet will retard the germination process and the roots will not shoot off in search of water since there's plenty of it around already. 30 small stone wool blocks also take up less space than 30 pots full of soil for seed germinating (out of which many will not actually ever sprout). The seeds that do come out in the stone wool blocks can be nice and neatly planted in your soil or hydro set up. And of course growers on stone wool slabs can get to work immediately. Atami has apparently succeeded in improving on and optimising regular stone wool. Using mixed fibre technology the fibres of the stone wool orient themselves in all possible directions thanks to which the roots can move easily and more quickly develop. The stone wool fibres in the block or slab are oriented vertically as well as horizontally which allows the plant to find a more natural route on its way to growing and blooming. These new stone wool blocks also contain more air, and as every growers knows, getting sufficient oxygen to the roots makes for a more powerful root growth. An optimal medium then in which seeds and clones will be able to shoot out their roots even more rapidly. Thanks to this powerful early root growth you will have stronger and eventually more productive plants. If we can take Atami at their word, then this mixed fibre technology heralds a revolution in stone wool land.

Available from all good grow shops

Info: Atami, The Netherlands

Tel (+31) (0) 73-5223256 / Fax: (+31) (0) 73-5213259

E-mail: info@atami.com / Website: www.atami.com



Adjust-a-wing

This reflector has been brought over from Australia, where it is pretty popular. The reflector can illuminate an area of 1.2 m to 1.8 m. This offers many possibilities for the grower. With just one lamp you can light a larger growing surface area with no loss of yield and sometimes even an

increase. This sounds fantastic in theory; fewer lamps needed and so less heat produced and so the environment stays under control better. The Adjust-a-wing reflector is delivered with a heat shield, and you should never use this reflector without this heat shield. In order to get the same yield with this reflector from a larger growing area, the lamp and its reflector need to be hung lower than normal. This can be as close as 20 cm from your growing plants, which is pretty low, and that it could get quite hot for the buds is something that many growers will be aware of. That is why you need the heat shield – it makes sure that the light is reflected away and the heat is reduced. The heat shield blocks a portion of the direct light thanks to which the heat directly under the lamp is strongly reduced while the blocked light is scattered to the sides of the reflector, so the plants can still make optimal use of it for growth and blooming. In short, without the heat shield you would never hope to achieve the optimised yields; only by having the reflector as low above the vegetation is this possible. You will also achieve a more even vegetative cover, which is to say that the plants will all be about the same height, because the light has been so optimally spread and the plants right under the lamp are not getting the full force of the light, something that is not the case with common lamps. Whether this reflector is not only good in theory but also in practice actually delivers the goods is something we will leave up to you to test for yourselves.

Info: www.elementshydroponics.com/
www.eastcoasthydroponics.co.uk
www.greenleafsystems.co.uk
www.hydroponic-shop.com
www.indooruk.co.uk
www.growshop-highfive.com



Sex is Everything!

Pre-flowering

Pre-flowers, described by Robert Clarke in *Marijuana Botany* as “primordial,” are the first indication of a plant’s sex. The pre-flowers grow at branch internodes just behind the leaf spur or stipule about the fourth week of vegetative growth, when the plant is six to eight weeks old. This is the point of sexual maturity, the first sign a plant is preparing for flowering—the next stage in life.

You can see pre-flowers with the naked eye, but a 10 to 30X magnifier will make viewing easier. You can accurately determine plant sex after eight weeks. Using this method, you can distinguish sex before inducing flowering.



Image shows a male plant after 24 days of vegetative growth at 18/6 day/night. Staminate flowers are located at the node between the stipule and emerging branch.



Early male flowers are easy to spot with the naked eye. They are located at branch internodes.



Male pollen sacs hang like little balls. Each pollen sac has enough pollen to pollinate all the females in the average grow room.

Male Pre-flowering

Male pre-flowers are normally visible when plants are six to eight weeks old, after the fourth week of vegetative growth. The preflowers emerge behind the stipule at the fourth to fifth branch internodes and generally do not turn into full flowers. But, according to Bongaloid (www.overgrow.com), “a male plant will develop mature staminate flowers after prolonged periods of vegetative growth.”

Always wait to induce flowering until after pre-flowers appear. Inducing flowering with 12 hours of uninterrupted darkness and 12 hours of light before pre-flowers develop will stress the plant. This stress could cause peculiar growth, and plants might develop into hermaphrodites. Inducing flowering before pre-flowers form will not expedite flowering. In fact, flowering will occur at about the same time as if you had waited for preflowers to show! Plants grown from seed under an 18/6 day/night photoperiod will generally show pre-flowers before plants that are given a 24/0 day/night photoperiod. Once preflowers are distinguishable as male or female, plants can be induced to flower with a 12/12 day/night photoperiod.



Male flowers develop quickly on the tip of this male plant. Keep an eye out for male plants, and separate them from females as soon as they are spotted.

A word of caution from bc-trichome-farmer (www.overgrow.com): “Do not try to sex a seedling based on the very first pre-flower. Wait and make sure. The time between using a 25X (loupe) to spot the very first pre-flower and the plant dropping pollen is at least 10+ days away, so it’s safe.”

Male Flowering

When given a 12/12 day/night photoperiod, male cannabis reaches



This male plant is in full bloom. Flowers open over the course of a week or longer to ensure females are completely pollinated.



Grains of pollen are minuscule. This close-up of a grain of male pollen is magnified 4000 times. Eirik (www.overgrow.com) captured this image on a scanning electron microscope.

maturity and flowers one to two weeks before females. However, male plants do not necessarily need a 12/12 day/night photoperiod to dawn flowers and shed pollen. Males can flower under long days and short nights as well, but they generally produce fewer flowers. Once male calyxes show, pollen develops quickly and can disperse within a very short time. There is always an early opener that sheds pollen, often within 24 hours or less! To avoid pollination problems, remove males as soon as they are distinguished. If growing male plants, always isolate them from females, so they will not be pollinated. See Chapter 5, “Harvest,” for more information on harvesting males.

Males continue flowering and shedding yellowish, dust-like pollen from bell-shaped pollen sacks well into the females’ flowering stage, which ensures pollination. If you are making seeds, pollinating females too early, before the girls have developed many receptive female pistils, will result in a small seed crop. See Chapter Seventeen, “Breeding,” for more information.

Male flowers are about one quarter-inch (6 mm) long and pastel green to yellowish in color. Flowers first develop near the top of the plant. Pollen sacks develop on a short spike and hang in clusters at the base of branches. Gradually, flowers develop towards the

bottom of the plant. After two to six weeks of the 12-hour photoperiod, fully formed floral sacks split open and shed pollen.

Males are usually taller than females and have stout stems, sporadic branching, and fewer leaves. In nature, wind and gravity carry pollen from taller males to fertilize (pollinate) receptive females. Male plants produce fewer flowers than females, because one male plant can pollinate many females. Males also contain less THC and overall lower cannabinoid levels.

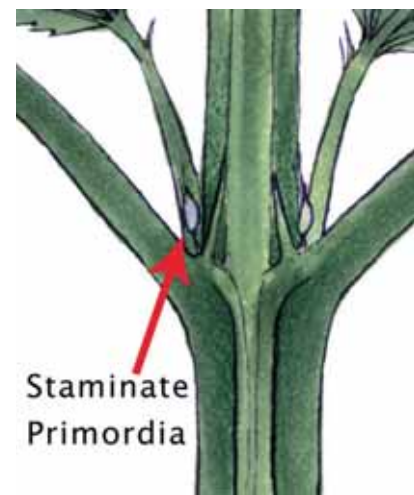
Males fertilize females, causing them to stop high THC production and start seed formation. Remove and destroy males, except those used for breeding, as soon as their sex has been determined. The instant they show sex, separate male plants used for breeding from females. Do not let them shed pollen. Premature pollen sacks often form and open early or are hidden under foliage and go unnoticed until it is too late. If growing from seed, take special care to ferret out male flowers and plants.

Growers have reported that bouncing the photoperiod around and dynamically raising or lowering the temperature have the effect of producing more male plants. Note that each stimulus involves creating a climate that causes plants to suffer stress. Also, the stressful environment does not necessarily turn the entire plant male; it turns it hermaphrodite. The most susceptible plants already have a predisposition to hermaphroditism. See Chapter Sixteen, “Breeding,” for more information.

There are several ways to promote male or female plants during seedling growth. (See “Grow More Female Plants from Seed” in Chapter Two). During vegetative growth you can get a good idea of a plant’s sex from its genetic background and growth characteristics. The most dependable way to deduce sex is “Cloning for Sex” (see Chapter Three). For a complete discussion, see Chapter Sixteen, “Breeding.”

Female Pre-flowering

Near the end of normal vegetative growth, plants grown from seed



The red arrow shows where pre-flowers develop on both male and female flowers.

develop pre-flowers. This is when female calyx formation initiates, and it is not contingent upon photoperiod. It occurs when a plant is old enough to show signs of sexual maturity, about the fourth week of vegetative growth, or six to eight weeks from germination. The pre-flowers emerge behind the stipule at the fourth to fifth branch internodes.

A pre-flower looks like a regular female flower; most have a pair of white fuzzy pistils. Pistils normally form after the light green seed bract part of the pre-flower has formed. Wait until pistils have formed to ensure the plant is a female and not a male. The preflowering stage lasts from one to two weeks. A little patience is in order now!

Plants grown from seed under an 18/6 day/night photoperiod will usually show pronounced pre-flowers before plants given a 24/0 day/night photoperiod. And, under a 16/8 day/night regimen pre-flowers show more quickly and are often more pronounced. Once pre-flowers are distinguishable as male or female, plants can be induced to flower with a 12/12 day/night photoperiod.

Always wait to induce flowering until after pre-flowers appear. Inducing flowering with 12 hours of uninterrupted darkness and 12 hours of light before pre-flowers develop will stress the plant. This stress could cause odd growth, and plants might grow into hermaphrodites. Inducing flowering before preflowers form will not speed flowering. Flowering will occur about the same time as if you had waited for pre-flowers to show!

This is an excerpt from Marijuana Horticulture: the Indoor/Outdoor Medical Grower's Bible by Jorge Cervantes, 512 pages 1120 full color photos and drawings, ISBN1-878823-23-X. The book is available in English and will be available in Spanish, German and Italian in the fall of 2006. For More information see: www.marijuanagrowing.com



The green calyx supports two very small pistils on this pre-flowering 'Flo' from DJ Short.



The pre-flower on this 'Mr. Bubble' female is very easy to spot with the naked eye.



Pre-flowers on this 'Puna Budder' from THSeeds are nearing the end of the pre-flowering stage that lasts about two weeks.

Did you know that making clones is nowhere near as hard as it looks? With just a little bit of effort, such as removing the growing shoots on the lower-most branches by just slicing them off, keeping them moist and then dipping the ends in rooting powder and popping them in a block of stone wool, we are already well on the way. A humid seed tray and a small lamp completes the picture.

Did you know that you should never give your young clones liquid nutrients (mixed with water) immediately on planting? The small roots of the clones at this stage are not able to stand it and will be irreparably damaged. In the first few days we only give them a little water, possibly with a little root stimulator added.

Did you know that with a Skunk variety, such as Super Skunk, you can achieve considerably larger yields? There are credible stories of up to 500 grams per plant being managed. Of course, these plants have been allowed to grow for much longer than normal and have been illuminated with more than one lamp.





About Grow Rooms

Basement

The best location for a grow room is in an obscure corner of a basement, where the temperature is easy to keep constant year round. Basements are well insulated by concrete walls and soil. A basement room can be enclosed and camouflaged with junk, a double wall, workbench, or shelving.

Added security is afforded by installing a false door in a closet. The grow room is located behind the secret door. Another good secret location, except for the possible heat build-up, is the attic. Few people venture to an attic that is difficult to access. Some growers locate their gardens below a trapdoor covered with a rug.

Law enforcement cannot use the electricity bill as sole grounds for a search warrant. But, they can use it along with other “evidence” such as remnants of indoor growing visible outdoors, thermal image heat signatures, snitch testimony, etc., to secure a search warrant. As long as the marijuana grown is not sold or shown to a snitch, there should be no reason for any suspicion. Thermal image technology is easy to outwit. Just keep the lights on during daylight hours to confuse the technology. Or, cool exhaust air and expel it under the well-insulated grow house so it does not leave a heat trail.



This cutaway basement grow room shows a real scenario. Plants on tables stay warmer and are easy to maintain.



Outbuildings, garages, and barns not attached to homes are some of the worst places to grow cannabis. Thieves and law enforcement often do not regard entering a barn or garage as a crime, though they would not consider entering a home. Security is much better when the garden is within the home.



This barrel full of water shows that cannabis will grow only as fast as its most limiting factor. Light is most often the factor that limits growth indoors.

- Air 20%**
- Temperature**
- Humidity**
- CO₂ and O₂ content**
- Light 20%**
- Spectrum (color)**
- Intensity**
- Photoperiod (hours of light per day)**
- Water 20%**
- Temperature**
- pH**
- EC**
- Oxygen content**
- Nutrients 20%**
- Composition**
- Purity**
- Growing Medium 20%**
- Air content**
- Moisture content**

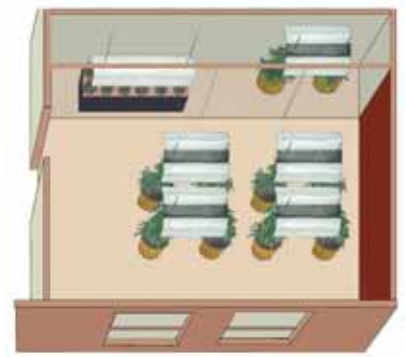
Although less common, there are even grow rooms on wheels! Some innovative growers have remodeled trailer houses and buses into grow rooms. One of my favorite grow rooms was in a tricked-out trailer. Another was in a 60-foot (18 m) sailing yacht!

The grow room’s size determines the size and the number of lamps. High intensity discharge (HID) lamps that work well to grow marijuana are available in wattages of 150, 175, 250, 400, 600, 1000, and 1100. Smaller wattages from 150-400, work well in closets or spaces with 9-21 square feet (0.8-2 m²) of floor space. Use 600-watt and larger bulbs for larger areas.

The drawings show several grow room floor plans. As the floor plans demonstrate, there are several basic approaches to grow room design and production. Most growers start out with a crop grown in a single room. After they harvest the crop, they introduce a new batch of clones. The photoperiod is switched back to 18 hours, and the cycle continues.

The most productive setups utilize two rooms. The first room is for vegetative growth, mother plants, and rooting clones. This room should be about one-quarter the size of the flowering room. When the flowering room crop is harvested, plants from the vegetative room are moved into the flowering room.

Super productivity is achieved with a perpetual crop. Several clones are taken every day or every week. Every day a few plants are harvested. For every plant harvested, a new cutting takes its place.



This indoor setup has a big flowering room, a vegetative room, and a clone chamber.

Setting Up the Grow Room Step-by-Step

Set up the grow room before introducing plants. Construction requires space and planning. A grow room under construction offers a terrible environment for plants. Once the grow room is set up and totally operational, it will be ready for plants.

Step One: Choose an out-of-the-way space with little or no traffic. A corner of the basement or a spare bedroom are perfect. A 1000-watt HID, properly set up, will efficiently illuminate up to a 6 _ 6-foot (1.8 x 1.8 m) room. The ceiling should be at least five feet (1.5 m) high. Keep in mind that plants in containers are set up at least one foot (30 cm) off the ground, and the lamp needs about a foot (30 cm) of space to hang from the ceiling. This leaves only three feet (90 cm) of space for plants to grow. If forced to grow in an attic or basement with a low fourfoot (120 cm) ceiling, much can be done to compensate for the loss of height, including cloning, bending, pruning, and using smaller wattage lamps.

Step Two: Enclose the room, if not already enclosed. Remove everything that does not pertain to the garden. Furniture, drapes, and curtains may harbor fungi. An enclosed room allows easy, precise control of every-11 thing and everyone that enters or exits, as well as who and what goes on inside. For most growers, enclosing the grow room is simply a matter of tacking up some plywood or fabricating plastic walls in the basement or attic and painting the room flat white. Make sure no light is visible from outside. If covering a window, do so discreetly—it should not look boarded up. Insulate windows and walls so a telltale heat signature does not escape. Basement windows often are painted to look like the foundation. Place some stuff—books, personal effects, household goods, etc.—in front of the

window, and build a box around the things so a natural scene is visible from the outside. At night, bright light leaking through a crack in an uncovered window is like a beacon to curious neighbors or bandits.



Take a little time to set up your grow room so all the space is used efficiently.



A single 1000-watt metal halide can grow enough mothers, clones, and vegetative plants to support 4000 watts of flowering HID light. This design allows pungent odors to waft upward before being evacuated via roof fans. A third area in the attic is used as a heat buffer in hot climates.



This closet grow room has everything necessary to grow a crop—lights, fans, and cannabis! A 400-watt HID lights the 3 _ 4-foot (90 _120 cm) flowering room above, and two 55-watt CFLs in one reflector illuminate mothers and clones in this perpetual harvest setup.



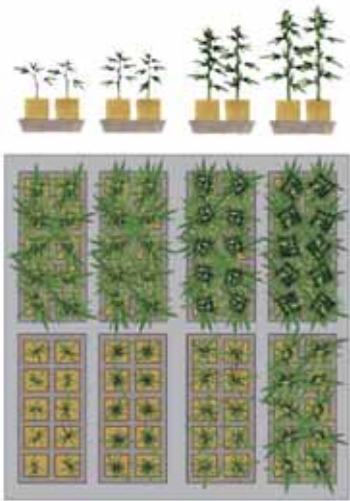
This attic grow room has access via a retractable ladder. The grower uses the dead airspace above the room for his ozone generator to exchange air before expelling.

Step Three: Cover walls, ceiling, floor—everything—with a highly reflective material like flat white paint or Mylar. The more reflection, the more light energy available to plants. Good reflective light will allow effective coverage of an HID lamp to increase from 10 to 20 percent, just by putting a few dollars worth of paint on the walls. Reflective white Visqueen® plastic is inexpensive and protects walls and floors.

Step Four: See “Setting Up the Vent Fan” in Chapter Thirteen. Constant air circulation and a supply of fresh air are essential but often inadequate. There should be at least one fresh-air vent in every grow room. Vents can be an open door, window, or duct vented to the outside. An exhaust fan vented outdoors or pulling new air through an open door usually creates an adequate flow of air. An oscillating fan works well to circulate air. When installing such a fan, make sure it is not set in a fixed position and blowing too hard on tender plants. It could cause windburn and dry out plants, especially seedlings and clones. If the room contains a heat vent, it may be opened to supply extra heat or air circulation.



This attic grow room is insulated with Styrofoam and reflection/anti-detection barrier foil available at www.hysupply.nl, which keeps the heat signature from showing.



In this simple Sea of Green layout, there are ten plants in each tray (80 total plants) illuminated by a single 1000-watt HID. Each week one tray of ten plants is harvested, and ten new plants are started.

Step Five: The larger your garden becomes, the more water it will need. A 10 _ 10-foot (3 x 3 m) garden could use more than 50 gallons (190 L) per week. Carrying water is hard, regular work. One gallon (3.8 L) of water weighs eight pounds (3.6 kg); 50 _ 8 = 400 pounds (180 kg) of water a week! It is much easier to run in a hose with an on/off valve or install a hose bib in the room than to schlep water. A three-foot (90 cm) watering wand attached to the hose on/off valve makes watering easier and saves branches from being broken when watering in dense foliage. Hook up the hose to a hot and cold water source so the temperature is easy to regulate.

Step Six: Ideally, the floor should be concrete or a smooth surface that can be swept and washed down. A floor drain is very handy. In grow rooms with carpet or wood floors, a large, white painter’s drop cloth or thick, white Visqueen plastic, will protect floors from moisture. Trays placed beneath each container add protection and convenience.

Step Seven: Mount a hook strong enough to support 30 pounds (14 kg) for each lamp. Attach an adjustable chain or cord and pulley between the ceiling hook and the lamp fixture. The adjustable connection makes it easy to keep the lamp at the proper distance from plants and up out of the way during maintenance.

Step Eight: There are some tools an indoor gardener must have and a few extra tools that make indoor horticulture much more precise and cost effective. The extra tools help make the garden so efficient that they pay for themselves in a few weeks. Procure all the tools before bringing plants into the room. If the tools are there when needed, chances are they will be put to use. A hygrometer is a good example. If plants show signs of slow, sickly growth due to high humidity, most growers will not identify the exact cause right away. They will wait and guess, wait and guess, and maybe figure it out before a fungus attacks and the plant dies. When a hygrometer is installed before plants are brought into the grow room, the horticulturist will know from the start when the humidity is too high and causing sickly growth.



These plants are growing in 3-gallon (11 L) pots and spaced on 6-inch (15 cm) centers. The 5-foot (2 m) high walls are covered with white Visqueen plastic.



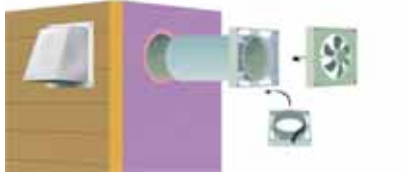
Keeping heat inside the room is as important as keeping it out! Insulation will keep heat out, and the heat generated inside the room will be easy to control.

Step Nine: Read and complete: “Setting Up the HID Lamp” at the end of Chapter Two.

Step Ten: Move seedlings and rooted clones into the room. Huddle them closely together under the lamp. Make sure the HID is not so close to small plants that it burns their leaves. Position 400-watt lamps 18 inches (45 cm) above seedlings and clones. Place a 600-watt lamp 24 inches (60 cm) away and a 1000-watt lamp 30 inches (75 cm) away. Check the distance daily. Hang a precut string from the hood to measure distance.



A vent fan and an oscillating circulation fan are essential to maintain a healthy environment.



This drawing shows how to install a vent fan. Adding rubber feet or padding around the fan will dampen noise.

This is an excerpt from Marijuana Horticulture: the Indoor/Outdoor Medical Grower's Bible by Jorge Cervantes, 512 pages 1120 full color photos and drawings, ISBN1-878823-23-X. The book is available in English and will be available in Spanish, German and Italian in the fall of 2006. For More information see: www.marijuanagrowing.com.

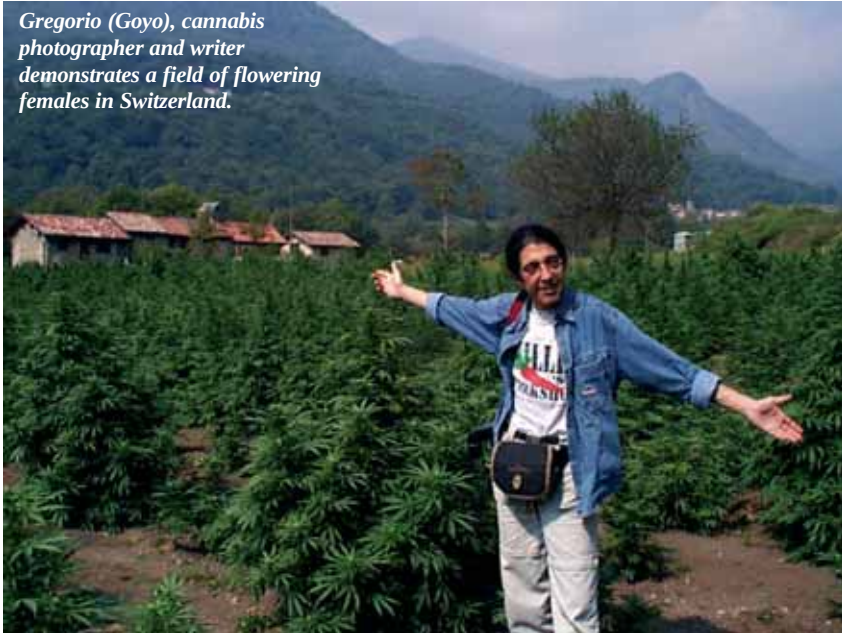
• Did you know that garlic is an exceptionally good basic insect repellent? If we boil up some garlic and then press it well and then let the liquid cool down and sieve it, we can fill a plant sprayer with it. It is a 100% organic substance that works really well against all kinds of gnawing beastsies.





Outdoor Strains

Gregorio (Goyo), cannabis photographer and writer demonstrates a field of flowering females in Switzerland.



Introduction

Outdoor growing is more popular than indoor growing in countries with lax cannabis laws. The reason is simple—sunshine is free; lights and electricity cost money. More people grow outdoors than indoors for this simple reason.

Cannabis is a strong plant that can be grown successfully almost anywhere. As long as you pay attention to security, virtually any growing area can be altered enough, often with little effort, to grow a healthy crop.

Do your research before planting. Read garden columns and talk to local growers about the best time to plant and grow tomatoes or similar vegetables, then plan accordingly. Also inquire about common pests and insects. Collect publications on local growing conditions. These are often available at nurseries or through your local department or ministry of agriculture.

You can grow anywhere. For example, one of the first guerilla crops I planted was on a freeway on-ramp in a city in the Northwest U.S. in the 1970s. I planted seedlings in a clay soil in a blackberry infested environment in late June. I gave the plants a single application of time release fertilizer. By late September there were short little female plants with dense little buds to smoke. The harvest weighed in at just under a pound of fragrant but leafy little buds. Everybody called it “homegrown.”

My first big guerilla crop was planted and harvested in the California foothills. I hiked up one of the many canyons carrying a 3.5 hp engine that weighed 30 pounds, (14 kg) plus the pump (another 30 pounds) and the plumbing connections that made it

attach to a 2-inch (5 cm) inlet and a 1.5-inch (3.5 cm) outlet. Schlepping four, 30-gallon (115 L) plastic garbage cans to act as reservoirs, 10-foot (3 m) lengths of PVC pipe, and 200 feet (60 m) of hose was a challenge!



The grower is peeking through this plant in his guerilla patch.



Peek-a-boo! This beautiful ‘Jamaican Pearl’ was planted in an obscure corner of the back yard.

I made these trips carrying conspicuous supplies at four in the morning. The hard part was carrying it all back down when I closed down the grow show!

After many trips up the canyon, I harvested six pounds of Colombian and Mexican bud. The quality was fair, but I harvested early and had the only fresh buds in town in mid-September. In “the good old days,” rural real estate for sale in northern California often advertised the number of marijuana growing holes that had already been amended.

Now Park Rangers carry guns and have the authority to arrest “suspected” growers. Latin mafias have also moved into the National Forests installing illegal immigrants with guns to grow and defend large patches of guerilla grass. The War on Drugs has turned much of America into an unsafe place to live and grow.

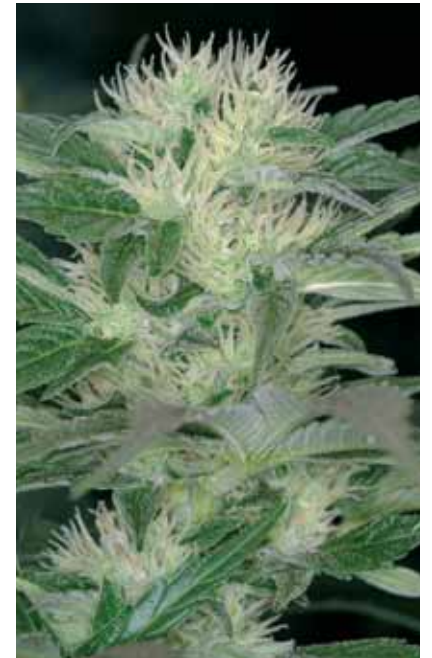
Australia, Canada, much of Europe, and many other parts of the world are significantly different; growers can plant in their backyards, greenhouses, or in remote locations with little fear of arrest.

Strains

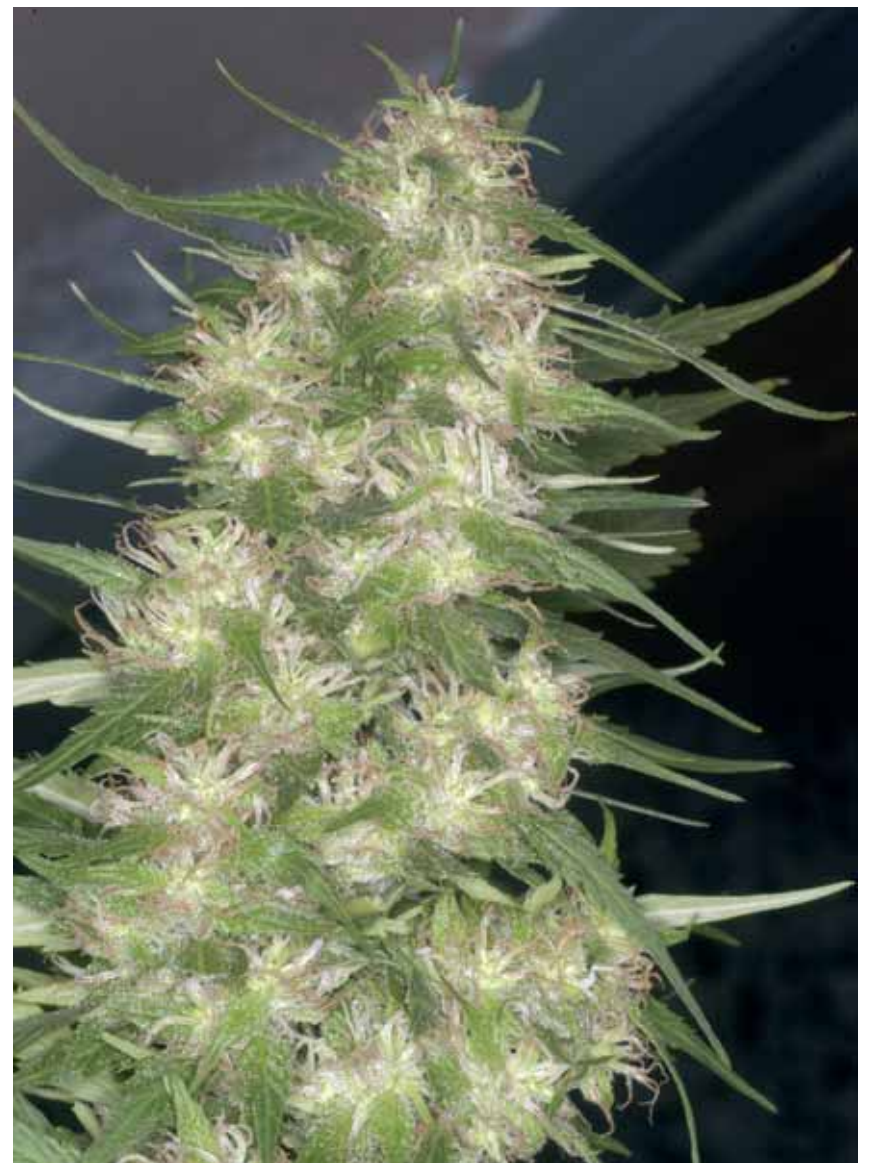
Selecting the right strains for your climate is just as important as finding the perfect location. This is a quick rundown on some popular outdoor

strains. The strains are grouped in five different categories distinguished by their finishing times.

It is a good idea to grow several different strains with different finishing times to spread out the work and drying over the course of time. If you grow a spring crop, you can harvest much of the season.



‘Hash Plant’, available from many seed companies, is ready to harvest in late August when grown outdoors.



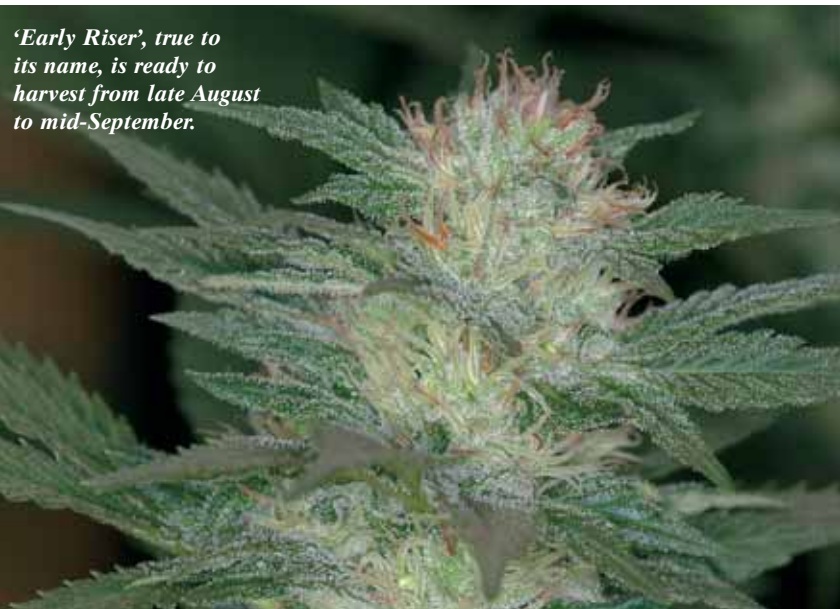
Cannabis strains mature at different times. Choose strains that grow well in your climate and that ripen before days grow cold and wet.

1. 'Hash Plant', 'Afghani', 'Hindu Kush', etc., are great varieties that finish mid- to late-August. The yield and potency are quite high, but the fragrance is high, too! These strains are for experienced growers. They need lots of intense sunlight and must be watered from below, not from above with rain. These varieties start to bud when the days are long and the sunlight is intense. The buds fatten up quickly on

plants with a short, squat growth habit. Rain followed by hot sunny days can foster mold, which could decimate the crop in a short time. Leaf has seen dried, cured buds the size of softballs that were packed with mold. They were thrown away. To avoid mold problems, he suggests harvesting when about 10 percent of the pistils have died back. Even heavy dew can cause a moldy disaster! Leaf loves 'Hash Plant'.



'Jack Herer' finishes from mid- to late-September.



'Early Riser', true to its name, is ready to harvest from late August to mid-September.



'White Russian' and others from the "White" family are ready to harvest from mid- to late-October.



'Northern Lights #5 x Haze' is one of the most potent and tasty strains. This cross is ready to harvest from late-October through early-November.

2. 'Early Pearl', 'Early Queen', 'Early Riser', etc., 'Manitoba Poison', and similar strains finish from late-August to early-September at latitude 49° north. They are potent and yield a little better than the plants listed above. They grow from six to nine feet (1.8-2.7 m) tall and are quite bushy. Most of these strains are mold resistant and easy to grow—excellent choices for novices or growers with little time to look after their plants.

3. 'Mighty Mite', 'Durban Poison', 'Jack Herer', etc., finish mid- to late-September. The yield and potency are very good, and the odor is not too intense. All the plants grow a huge, dominant main cola with several large terminal buds on main branches. They may need trellising to avoid broken branches. Topping appears to increase yield. These strains are fairly low-maintenance, but the more love you give, the more they return. These plants grow well if left alone until mid-September and have a good harvest as long as they do not dry out or fall over. 'Mighty Mite' is another favorite.

4. 'Blueberry', 'White Widow', 'White Rhino', 'Super Silver Haze', 'Pure Power Plant', etc., tend to finish mid- to late-October. Yields and potency are very high! They do not smell a lot while growing, but that changes when they are cut! They grow seven- to ten-feet (2-3 m) tall and yield heavily. They require some attention to get the best crop. 'Super Silver Haze' and 'Pure Power Plant' can be a bitch to grow because they often develop mold near harvest when the weather is damp. However, a mild to moderate frost tends to bring out some nice (purple) colors. They all do well outdoors but grow even better indoors.

5. 'Skunk #1', 'Northern Lights #5', 'Big Bud', and pure or nearly pure sativas finish from late-October to early-November. Sometimes sativas do not finish if the weather cools too much and snow comes. One year, on November 15th, the first snowfall had to be shaken off at harvest! About 50 percent of the pistils had died back. 'Skunk #1' is extremely smelly; the wind can literally carry the skunk scent for a mile. All of the plants in this group have a large to huge yield capable of producing several pounds each. 'Big Bud' yields an enormous amount; the bottom branches must be tied or staked to avoid breaking from bud weight. Potency is superb in all plants in this category except for 'Big Bud.'

All plants grow tall. 'Big Bud' and 'Skunk #1' grow 10-14 feet (3-4 m) tall. 'Northern Lights' are often taller! A few sativas can grow to 20 feet (6 m)!

Fungus can become a problem with these late-flowering plants. They withstand rain and light frost well; many can take a few light snowfalls. After all, they grow like weeds!

This is an excerpt from Marijuana Horticulture: the Indoor/Outdoor Medical Grower's Bible by Jorge Cervantes, 512 pages 1120 full color photos and drawings, ISBN1-878823-23-X. The book is available in English and will be available in Spanish, German and Italian in the fall of 2006. For More information see: www.marijuanagrowing.com.





Gray Mold (Botrytis), a.k.a. Bud Mold



Botrytis, also known as bud mold, attacks both buds and stems of plants.



Botrytis on this plant progressed from the bud down the stem.

Identify:

Gray mold is the most common fungus that attacks indoor plants, and flourishes in moist temperate climates common to many grow rooms. Botrytis damage is compounded by humid (above 50 percent) climates. It starts within the bud and is difficult to see at the onset – grayish-whitish to bluish-green in color – *Botrytis* appears hair-like and similar to laundry lint in moist climates. As the disease progresses, the foliage turns somewhat slimy. Damage can also appear as dark, brownish spots on buds in less humid environments. Dry to the touch, *Botrytis* affected area often crumbles if rubbed. Gray mold attacks countless other crops, and airborne spores are present virtually everywhere. While most commonly found attacking dense and swelling flower buds, it also attacks stems, leaves, seeds and causes damping-off and decomposes dry, stored bud. It is also transmitted via seeds.

Damage:

Watch for single leaves on the buds that mysteriously dry out. They could be the telltale signs of a *Botrytis* attack inside the bud. Constant observation, especially during the last two weeks before harvest, is necessary to keep this disease out of the garden. Flower buds are quickly reduced to slime in cool, humid conditions or un-smokable powder in warm, dry rooms. *Botrytis* can destroy an entire crop in 7-10 days if left unchecked. Stem damage – *Botrytis* starts on stems and not buds – is less common indoors. First, stems turn yellow and cankerous growths develop. The damage causes growth above the wound to wilt and can cause stems to fold over. Transported by air, contaminated hands, and tools, gray mold spreads very quickly indoors,

infecting an entire grow room in less than a week when conditions are right.

Control:

Minimize *Botrytis* attack incidence with low humidity (50 percent or less), ample air circulation, and ventilation. Grow varieties that do not produce heavy, tightly packed buds that provide a perfect place for this fungus to flourish. Cool (below 21 degrees C.), moist climates with humidity above 50 percent are perfect for rampant gray mold growth. Remove dead leaf stems, petioles, from stalks when removing damaged leaves to avoid *Botrytis* outbreaks, which often harbors on dead-rotting foliage. Increase ventilation and keep humidity below 60 percent, and keep the grow room clean! Use fresh, sterile growing medium for each crop.

Cultural and physical:

As soon as *Botrytis* symptoms appear, use alcohol-sterilized pruners to remove *Botrytis* infected buds at least one inch below the infected area. Some growers amputate 2-4 inches below damage to ensure removal. Do not let the bud or anything that touches it contaminate other buds and foliage. Remove from the garden and destroy. Wash your hands and tools after removing. Increase temperature to 26 C. degrees and lower humidity to below 50 percent. Excessive nitrogen and phosphorus levels make foliage tender, so *Botrytis* can get a foothold. Make sure pH is around 6 to facilitate calcium uptake. Low light levels also encourage weak growth and gray mold attack. Avoid heavy crowding of plants and keep the light levels bright. *Botrytis* needs UV light to complete its life cycle; without UV light it cannot live. Some varieties seldom fall victim to gray mold. Many crosses are more resistant to gray mold than pure indica varieties. Harvest when resin glands are still translucent. Once glands turn amber, threat of gray mold increases substantially.

Biological:

Spray plants with *Gliocladium roseum* and *Trichoderma* species. Prevent damping-off with a soil application of *Gliocladium* and *Trichoderma* species. *Hemp Diseases and Pests* suggests to experiment with the yeasts *Pichia guilliermondii* and *Candida oleophila* or the bacterium *Pseudomonas syringae*.

Sprays:

Bordeaux mixture keeps early stages of *Botrytis* in check as long as it is present on the foliage. Preventative spraying is advised if in a high-risk area, but spraying buds near harvesttime is not advised. Seeds are protected from *Botrytis* with a coating of Captan. Check with your local nursery for product recommendations.

Damping-off

Identify:

This fungal condition, sometimes called *Pythium wilt*, is often found in soil and growing mediums. It prevents newly sprouted seeds from emerging, attacks seedlings causing them to rot at the soil line, yellows foliage and rots older plants at soil line, and occasionally attacks rooting cuttings at the soil



This bud is covered with Botrytis. It was removed from the garden and destroyed.



Evaporated sulfur in a grow room or greenhouse stops Botrytis from contaminating plants.

line. It is caused by different fungal species, including *Botrytis*, *Pythium*, and *Fusarium*. Once initiated, damping-off is fatal. At the onset of damping-off, the stem loses girth at the soil line, weakens, then grows dark, and finally fluid circulation is cut, killing the seedling or cutting.

Control:

Damping-off is caused by a combination of the following:

- 1) Fungi is already present in an unsterile rooting medium
- 2) Overwatering and maintaining a soggy growing medium
- 3) Excessive humidity.



Damping-off attacked this stem at the soil line, rotting the buried end of the stem.



A small, white spot and the beginning of rot at the soil line are the first visual signs of damping-off.



Lack of oxygen caused by overwatering impairs root development along the stem and helps cause damping-off.

The disease can be avoided by controlling soil moisture. Overwatering is the biggest cause of damping-off and the key to prevention. Careful daily scrutiny of soil will ensure the proper amount of moisture is available to seeds or cuttings. Start seeds and root cuttings in a fast draining, sterile, coarse sand, rockwool, Oasis™ or Jiffy™ cubes, which are difficult to overwater. Do not place a humidity tent over sprouted seedlings – a tent can lead to excessive humidity and damping-off. Cuttings are less susceptible to damping-off and love a humidity tent to promote rooting. Keep germination temperatures between 21-29 C. degrees. Damping-off is inhibited by bright light; grow seedlings under the HID rather than fluorescent bulbs. Keep fertilization to a minimum during the first couple of weeks of growth. Germinate seeds between clean, fresh paper towels and move seeds to soil once sprouted. Do not plant seeds too deep, cover with soil the depth of the seed. Use fresh, sterile growing medium and clean pots to guard against harmful fungus in the soil.

Biological:

Apply Polygangron® (*Pythium oligandrum*) granules to soil and seed. Bak Pak®, Intercept® are applied to the soil and Deny® or Dagger® – forms of the bacterium *Burkholderia cepacia* – are put on the seeds. Epic®, Kodiak®, Quantum 4000®, Rhizo-Plus®, System 3®, and Serenade® also suppress many causes of damping-off. Chemical: Dust the seeds with Captan®. Avoid benomyl fungicide soil drench because it kills beneficial organisms.

Downy Mildew

Identify:

Sometimes called *false mildew*, downy mildew affects vegetative and flowering plants. Young, succulent foliage is a favorite starting place. Powdery mildew develops in temperatures below 25 degrees C.

It appears as whitish-yellow spots on top of leaves creating pale patches. Grayish mycelium spawn is on leaf undersides, opposite the pale patches. Downy mildew can spread very quickly, causing a lack of vigor and slow growth; leaves yellow, die back, and drop. The disease is in the plant system and grows

outward. It is often fatal, spreads quickly, and can wipeout a crop. Avoid promoting this disease by not crowding plants. Keep temperatures above 26 degrees C and the humidity below 50 percent.

Control:

Cleanliness! Use sterile growing medium. Remove and destroy affected plants not just foliage.

Biological:

Apply Serenade®. Bordeaux mixture is also somewhat effective.

Powdery Mildew

Identify:

First indication of infection is small spots, on the top of leaves. At this point the disease has been inside the plant a week or more. Spots progress to a fine, pale gray-white powdery coating on growing shoots, leaves, and stems. Powdery mildew is not always limited to the upper surface of foliage. Growth slows, leaves yellow, and plants die as the disease advances. Occasionally fatal indoors, this disease is at its worst when roots dry out and foliage is moist. Plants are infected for weeks before they show the first symptoms.

Control:

Cleanliness! Prevent this mildew by avoiding cool, damp, humid, dim grow rooms and fluctuating temperatures and humidity. Low light levels and stale air mitigate this disease. Increase air circulation-ventilation and make sure light intensity is high. Space containers far enough apart so air freely flows in between plants. Allow foliage to dry before turning off lights. Remove and destroy foliage more than 50 percent infected. Avoid excess nitrogen. Copper and sulfur-lime sprays are a good prophylactic.

Biological Control:

Apply Serenade® (*Bacillus subtilis*) or spray with a saturation mix of baking soda and water.

Sprays:

Bordeaux mixture may keep this mold in check. A saturation of baking soda spray dries to a fine powder on the leaf; the baking soda changes the surface pH of the leaf to 7, and powdery mildew cannot grow.

For growing outdoors, the Durban variety is perhaps one of the most successful you can choose. This variety, originally from South Africa, also does very well in the European climate. Although this lady does need a little longer to complete her bloom, so you will need a bit of luck with the autumn weather, she is a great-looking weed with a terrific high!

What many growers do not know is that the Santa Maria strain was originally a proper outdoor variety, and that is why it often looks like she has the luxuriance and power to grow like a weed. There are even growers who swear that Santa Maria is one of the fastest growing marijuana varieties ever developed!

This is an excerpt from *Marijuana Horticulture: the Indoor/Outdoor Medical Grower's Bible* by Jorge Cervantes, 512 pages 1120 full color photos and drawings, ISBN1-878823-23-X. The book is available in English and will be available in Spanish, German and Italian in the fall of 2006. For More information see: www.marijuanagrowing.com.





Seeds

An introduction to Cannabis strains



Full page of seedlings

Technically and legally, all cannabis, whether rope or dope, is classified as *Cannabis sativa*. Regardless of origin, all cannabis is considered *Cannabis sativa* (*C. sativa*) under international law. However, according to *Hemp Diseases and Pests*, Dr. J. M. McPartland, R. C. Clarke, and D. P. Watson, CAB International, *Cannabis sativa* can be further classified as: *Cannabis sativa* (= *C. sativa* var. *sativa*), *Cannabis indica* (= *C. sativa* var. *indica*), *Cannabis ruderalis* (= *C. sativa* var. *spondanea*), *Cannabis afghanica* (= *C. sativa* var. *afghanica*). Each has distinct growth patterns, look, smell, taste, etc.

Cannabis Sativa

Cannabis sativa (= *C. sativa* var. *sativa*), originated predominately in Asia, the Americas, and Africa. Each area of origin has specific characteristics, but all have the following general traits: tall, leggy stature with spacious internodal length, a large sprawling root system, large narrow-bladed leaves, and somewhat sparse flowers when grown indoors under lights. Sativas bloom several weeks to months later than *indica* strains. While good producers outdoors, often growing to 15 feet (4.5 meters) or more, indoors pure *sativa* strains often grow too tall too fast—some up to ten feet in three months—to be practical for grow room cultivation. An HID bulb is unable to efficiently illuminate tall plants, and the yield-per-watt-of-light or yield-per-square-foot-of-space is very low. Mexican, Columbian, Thai, and Jamaican strains can be very potent, with a high THC to CBD ratio

that produces a soaring, energetic, “speedy” high. But potency can also be minimal, with low levels of THC. Most exported Columbian, Mexican, Thai, and Jamaican marijuana is poorly treated throughout life and abused when dried and packed. This abuse causes more rapid degradation of THC. Consequently, seeds from fair smoke are often more potent than the parent.

Central African sativas, including the THC-potent ‘Congolese’, grow similarly to Columbian strains, with a tall leggy stature, often growing more than 15 feet (4.5 meters) tall with loosely packed buds.

South Africa has major seaports. Sailors brought *Cannabis sativa* from many different places and planted it in South Africa. Consequently, potency of South African weed can be very high or very low, and can grow short, tall, leggy, bushy, etc. The famous ‘Durban Poison’ yields potent, pale-green, early buds and is the best-known South African strain.

Asian sativas, including Thai, Vietnamese, Laotian, Cambodian, and Nepalese, have diverse growth characteristics and vary significantly in potency. While Thai and other sativas from the area are often super THC-potent, they are some of the most difficult to grow indoors and the slowest to mature. Thai strains produce very light, wispy buds after flowering for about four months on plants with large, sprawling branches. Thai, Vietnamese, Cambodian, and Laotian sativas are more prone to grow into hermaphroditic adults.

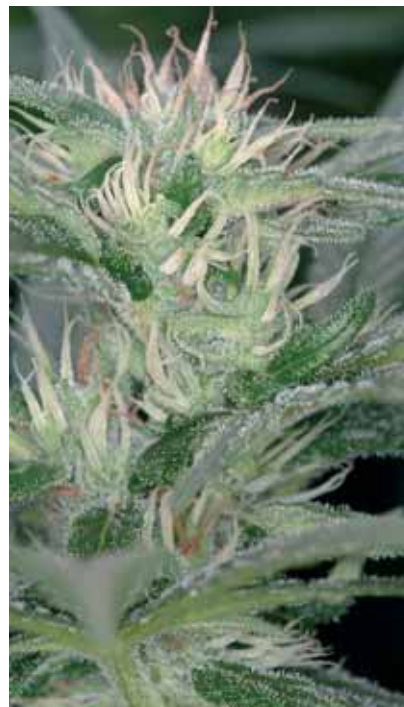
Nepalese sativas can grow oversized leaves on tall leggy plants that produce sparse, late-blooming buds, but other strains from this region develop into short, compact plants that bloom earlier. Tetrahydrocannabinol (THC) production and potency is often quite high but can also be second-rate.



The seeds came from Chanvre & Co →>>>This leaf from an industrial hemp plant came from the French entity Chanvre & Co. Industrial “no high” cannabis will pollinate drug cannabis.

Hemp strains are all considered to be *Cannabis sativa*. Hemp, affectionately referred to as “rope,” is *Cannabis sativa* grown for fiber content. Hemp is often seeded and contains very, very low levels of THC.

Cannabis Indica



Cannabis indica plant, Silver Pearl



Cannabis indica leaf has broader blades than *C. sativa* leaves, but not as broad as *C. afghanica*.

Cannabis indica (= *C. sativa* var. *indica*) originated in Pakistan and India. *Indica* is prized by indoor growers and breeders for its squat, bushy growth; condensed root system; stout stems; broad leaves; and dense, THC-laden, fat heavy flowers. Foliage is very dark green, and in some strains, leaves around buds turn reddish to purple. Short, whitish pistils turn reddish to purplish in hue. A few indicas from this part of the world have narrower leaves, long white pistils, and pale green foliage. *Indica* strains generally contain a higher ratio of CBD to THC, which causes an effect often described as a heavy, incapacitating “sit-on-your-head” stone. Potency of the “high” ranges from fair to stupefying. Some indicas have a distinctive odor similar to that of a skunk or cat urine, while others smell sweet and exotic. Heavily resin-laden plants tend to be the most fungus and pest-resistant. Few indicas with heavy, dense, compact buds are resistant to gray (bud) mold.

Cannabis Ruderalis



‘Lowryder’ is one of the few *C. ruderalis* crosses that is auto-flowering and THC-potent.



One of the first Seed Bank catalogs from 1987 shows a *C. ruderalis* plant alongside the highway in Hungary. Many breeders mistakenly hailed this plant as the “Holy Grail” of cannabis.

Cannabis ruderalis (= *C. sativa* var. *spondanea*) was first brought to Amsterdam from Central Europe in the early 1980s by the Seed Bank to enhance their breeding program. Very similar, if not the same “ruderalis” plants grow from Minnesota north through Manitoba and Saskatchewan, Canada.

C. ruderalis is a short, weedy, scrubby plant containing very, very little THC, but it starts the flowering cycle after a few weeks growth. Photoperiod does not induce flowering in *C. ruderalis*. Sometimes confused with more potent indicas, pure *C. ruderalis* is true ditch weed. It yields a headache rather than a high! Today a few breeders have incorporated the early flowering *C. ruderalis* genes with other early blooming *C. sativa*, *C. indica*, and *C. afghanica*.

Cannabis Afghanica

Cannabis afghanica (= *C. sativa* var. *afghanica*) originated near present day Afghanistan. It is quite short, seldom reaching six feet, with distinctive, broad, dark-green leaflets and leaves. Dense branching and short internodes most often with long leaf stems (petioles) dominate the profile of *C. afghanica*. The most common examples of pure *C. afghanica* include the many different Hash Plants and Afghani strains. *C. afghanica* is cultivated exclusively for drugs with much of the resin being made into hashish. It is known for the high cannabinoid content. Many growers and breeders do not distinguish *C. afghanica* from *C. indica*, lumping them both into the *C. indica* category.



'Hash Plant', of which there are many, is one of the classic *C. afghanica* strains.



C. afghanica has very wide and distinctive leaflets and leaves.

Seeds

Explosive growth of seed breeders and legal seed sales in the Netherlands, the United Kingdom, Canada, France, Switzerland, Spain, etc., has given way to more strains of cannabis than ever before. Most popular strains of cannabis are a combination of two or more of



Close-up of 'Power Plant' seeds



Close-up of 'Eclipse' seeds



'Kali Mist' seeds are spotted and mottled.

the following: *C. sativa*, *C. indica*, *C. ruderalis*, and *C. afghanica*. But there are also many seeds with the genes from just one of the above. These strains of cannabis are bred to grow best indoors. Others grow best in greenhouses and still others outdoors in specific climates.

A seed contains all the genetic characteristics of a plant. Seeds are the result of sexual propagation and contain genes from each parent, male and female. Some plants, known as hermaphrodites, bear both male and female flowers on the same plant. The genes within a seed dictate a plant's size; disease and pest resistance; root, stem, leaf, and flower production; cannabinoid levels; and many other traits. The genetic makeup of a seed is the single most important factor

dictating how well a plant will grow under artificial light or natural sunlight and the levels of cannabinoids it will produce.

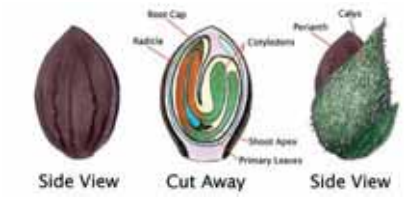
Strong, healthy parents and proper care yield strong seeds that germinate well. Strong seeds produce healthy plants and heavy harvests. Seeds stored too long will germinate slowly and have a high rate of failure. Vigorous seeds initiate growth within seven days or sooner. Seeds that take longer than a month to germinate could always be slow and produce less. However, some seeds take longer to germinate even under the best conditions.

The cask, or outer protective shell, on some seeds never properly seals, which allows moisture and air to penetrate. It

also causes hormone concentrations to dissipate and make seeds less viable. Permeable seeds signal diseases and pests to move in. Such seeds are immature, white, fragile, and crush easily with slight pressure between finger and thumb. These are weak seeds and do not have enough strength to grow well.

Typically, a grower who acquires a bag of ten quality seeds from a reputable seed company germinates them all at once. Once germinated, the seeds are carefully planted and grown to adulthood. By and large, of the ten seeds, some will be male, some will be weak and grow poorly, and two or three seeds will grow into strong, super females. Of these "super" females, one will be more robust and potent than her siblings. This super female is selected be the mother of countless super clones.

A simple picture of a seed reveals an embryo containing the genes and a supply of food wrapped in a protective outer coating. Mature seeds that are hard, beige to dark brown, and spotted or mottled have the highest germination rate. Soft, pale, or green seeds are usually immature and should be avoided. Immature seeds germinate poorly and often produce sickly plants. Fresh, dry, mature seeds less than a year old sprout quickly and grow robust plants.



The cut-away drawing in the center shows how the seed will develop into different plant parts.



Seeds in this seeded female swell and break open the seed bract.

This is an excerpt from Marijuana Horticulture: the Indoor/Outdoor Medical Grower's Bible by Jorge Cervantes, 512 pages 1120 full color photos and drawings, ISBN1-878823-23-X. The book is available in English and will be available in Spanish, German and Italian in the fall of 2006. For More information see: www.marijuanagrowing.com.



Reflective Hoods

Some reflective hoods reflect light more evenly than others. A reflector that distributes light evenly—with no hot spots—can be placed closer to plants without burning them. These hoods are most efficient, because the lamp is closer and the light more intense. The farther the lamp is from the garden, the less light plants receive. For example, a 1000-watt reflector with a “hot spot” must be placed 36 inches above the garden. A 600-watt lamp with a reflector that distributes light evenly can be placed only 18 inches above the garden. When placed closer, the 600-watt lamp shines as much light on the garden as the 1000-watt bulb! The proper reflective hood over the lamp and reflective walls can double the growing area. Growers who use the most efficient reflective hoods harvest up to twice as much as those who don’t.

Seedlings, cuttings, and plants in the vegetative growth stage need less light than flowering plants, because their growth requirements are different. For the first few weeks of life, seedlings and clones can easily survive beneath fluorescent lights. Vegetative growth requires a little more light, easily supplied by a metal halide or compact fluorescent lamp at the rate of:

Horizontal Reflective Hoods

Horizontal reflectors are most efficient for HID systems, and are the best value for growers. A horizontal lamp yields up to 40 percent more light than a lamp burning in a vertical position. Light is emitted from the arc tube. When horizontal, half of this light is directed downward to the plants, so only half of the light needs to be reflected. Horizontal reflectors are inherently more efficient than vertical lamps/reflectors, because half of the light is direct and only half of the light must be reflected. Horizontal reflective hoods are available in many shapes and sizes. The closer the reflective hood is to the arc tube, the less distance light must travel before being reflected. Less distance traveled means more light reflected. Horizontal reflective hoods tend to have a hot spot directly under the bulb. To dissipate this hot spot of light and lower the heat it creates, some manufacturers install a light deflector below the bulb. The deflector diffuses the light and heat directly under the bulb. When there is no hot spot, reflective hoods with deflectors can be placed closer to plants. Horizontally mounted HP sodium lamps use a small reflective hood for greenhouse culture. The hood is mounted a few inches over the horizontal HP sodium bulb. All

Chart: Maximum Light requirements for plants

Growth Stage	Foot-candles	Lux	Hrs. of Light
Seedling	375	4.000	16-24
Clone	375	4.000	18-24
Vegetative	2.500	27.000	18
Flowering	10.000	107.500	12

These guidelines will give plants all the light they need to form dense buds. Less light will often cause looser, less-compact buds to form.

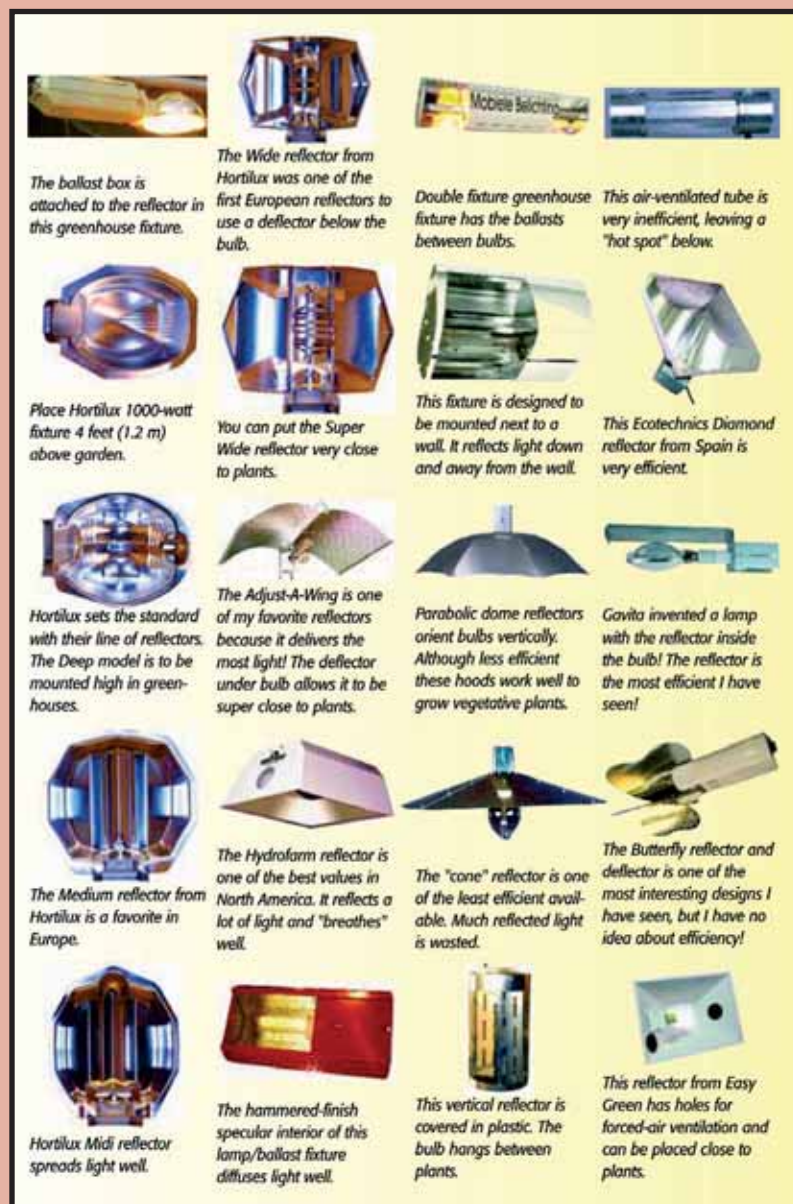
Reflective hoods are made from steel sheet metal, aluminum, even stainless steel. The steel is either cold rolled or pre-galvanized before a reflective coating is applied. Pre-galvanized steel is more rust resistant than cold rolled steel. This metal can be polished, textured or painted, with white being the most common paint color. Premium hood manufacturers apply white paint in a powder-coating process. Note: there are different shades of white, and some whites are whiter than others. Flat titanium white is the most reflective color and diffuses light most effectively. Glossy white paint is easy to clean but tends to create hot spots of light. Sheet metal hoods are less expensive than the same size aluminum hood, because of reduced materials expense..

The pebble and hammer-tone surfaces offer good light diffusion and more surface area to reflect light. Hot spots are commonplace among highly polished, mirror-like surfaces. Mirror-polished hoods also scratch easily and create uneven lighting.

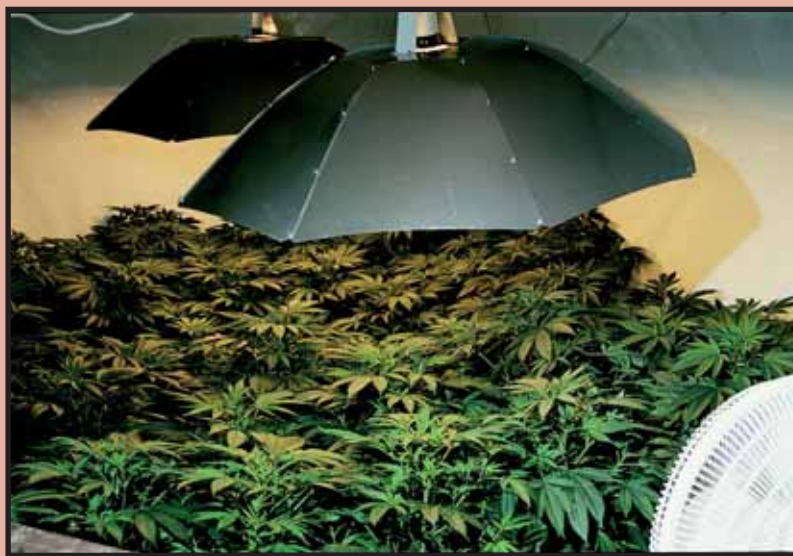
light is reflected down toward plants, and the small hood creates minimum shadow.

Vertical Reflective Hoods

Reflectors with vertical lamps are less efficient than horizontal ones. Like horizontal bulbs, vertically mounted bulbs emit light from the sides of the arc tube. This light must strike the side of the hood before it is reflected downward to plants. Reflected light is always less intense than original light. Light travels farther before being reflected in parabolic or cone reflective hoods. Direct light is more intense and more efficient. Parabolic dome reflectors offer the best value for vertical reflectors. They reflect light relatively evenly, though they throw less overall light than horizontal reflectors. Large parabolic dome hoods distribute light evenly and reflect enough light to sustain vegetative growth. The light spreads out under the hood and is reflected downward to plants. Popular parabolic hoods are inexpensive to manufacture and provide a good light value for the money.



PL reflective hoods are computer designed for even light distribution.



Vertical parabolic dome reflective hoods distribute light evenly over a large area and are perfect for vegetative growth.

Four-foot parabolic hoods are usually manufactured in nine parts. The smaller size facilitates shipping and handling. The customer assembles the hood with small screws and nuts. Four-foot cone hoods are usually manufactured in four parts. The smaller size facilitates shipping and handling. The customer assembles the pieces with small screws and nuts. Cone-shaped reflectors using a vertical bulb waste light and are very inefficient. Growers who try to save money by purchasing cone-shaped reflectors pay even more in lost efficiency.

For example, say you bought a cone reflective hood for \$20 instead of the top of the line horizontal reflector for \$40. First, let's look at efficiency. The cone hood produces at 60 percent efficiency and the horizontal reflector at 100 percent, or 40 percent more. Each lamp costs \$36 per month to operate 12 hours daily at \$0.10 per kilowatt-hour (kWh). If 100 percent = \$0.10 per kilowatt-hour, then 60 percent efficiency = \$0.06, or a loss of \$0.04 for each kilowatt-hour. With this information we can deduce that $\$36/\$0.04 = 900$ hours. In 900 hours (75 12-hour days)

the horizontal reflector has recouped the extra \$20 cost. Not only does the vertical cone yield 40 percent less light, it costs 40 percent more to operate! When this 75-day break-even point is reached, you will be stuck with an inefficient reflective hood that costs more for fewer lumens every second the lamp is using electricity! Lightweight reflective hoods with open ends dissipate heat quickly. Extra air flows directly through the hood and around the bulb in open-end fixtures to cool the bulb and the fixture. Aluminum dissipates heat more quickly than steel. Train a fan on reflective hoods to speed heat loss.

Artificial light fades as it travels from its source (the bulb). The closer you put the reflector to the bulb, the more intense the light it reflects.

Enclosed hoods with a glass shield covering the bulb operate at higher temperatures. The glass shield is a barrier between plants and the hot bulb. Enclosed hoods must have enough vents; otherwise, heat build-up in the fixture causes bulbs to burn out prematurely. Many of these enclosed fixtures have a special vent fan to evacuate hot air.

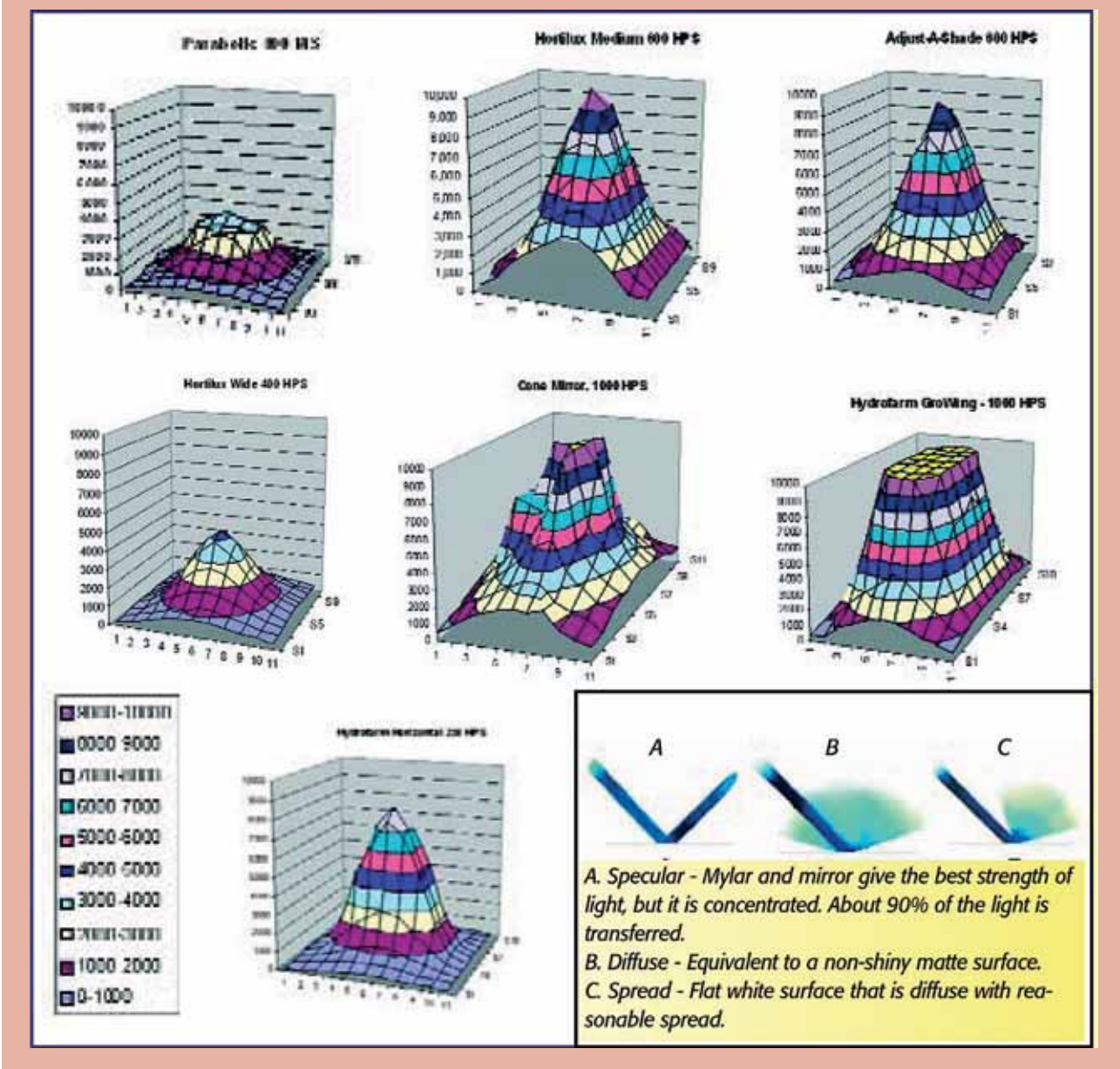
Reflective Hood Study

I constructed a black room, everything black inside, to measure the amount of light reflective hoods yield. The room was 10 _ 10-foot square (3 m2). The floor was covered with black tar paper. Less than three percent light could be reflected from the black surfaces—there was no extra light in this room. Measurements were made every 12 inches (30 cm) on a matrix marked on the floor. The walls had one-foot increments marked.

I tested five different lamps: a 1000-watt clear super metal halide, a 1000-watt HP sodium, a 600-watt HP sodium, a 400-watt super metal halide, and a 400-watt HP sodium. I positioned the bulb exactly three feet from the floor. Every lamp was warmed up for 15 minutes before taking measurements.

The foot-candle readings on the floor were taken every 12 inches (30 cm) and the results posted to a spreadsheet program. I used a simple spreadsheet graph program to present the graphic results.

The studies show a huge difference between reflective hoods. Some companies do not test their hoods before



putting them on the market. To protect yourself and your plants, set up tests like the ones I did here to find out which reflector is the best for your needs.

When a reflector distributes light evenly, the lamp can be placed closer to plants.

In general, the larger the wattage of the bulb, the more efficient it is. Since light intensity diminishes so quickly, bulbs must be close to plants. Consequently, more lamps or point sources of light are necessary for even distribution of bright light.

Operating costs for three 600-watt HPS

lamps are lower than for two 1000-watt HPS lamps. The 600-watt lamps produce more lumens for the same amount of money, plus they can be closer to plants. There are also three point sources of light, which evens out distribution.

A heat vent outlet around the bulb helps dissipate heat into the atmosphere. Excessive heat around the bulb causes premature burnout.

The studies show the light distribution of several types of light reflectors. The graphs clearly show that horizontal reflectors deliver many more lumens than vertical setups. Check out the "Light Measurement Handbook" available free on the Internet. The 64-page technical book answers endless light questions. Download the book in a few minutes, photos and all: www.Intl-Light.com/handbook/.

This is an excerpt from Marijuana Horticulture: the Indoor/Outdoor Medical Grower's Bible by Jorge Cervantes, 512 pages 1120 full color photos and drawings, ISBN1-878823-23-X. The book is available in English and will be available in Spanish, German and Italian in the fall of 2006. For More information see: www.marijuanagrowing.com.



Frosty nights with Jack Herer

Experimenting with cold temperatures

By Bart B.

Icy cold nights are no longer the exception, since for some time now it has been winter. The temperature during the hours of darkness has fallen. Gardens are being upgraded with extra lamps and heaters are being hauled out of storage so as to make sure the tropical climate in grow spaces can be maintained. Because the green herb, as many of us know, is primally powerful and grows and blooms without any problem and without any major intervention from humans, even when the cooler nights begin to penetrate deep into the grow space.



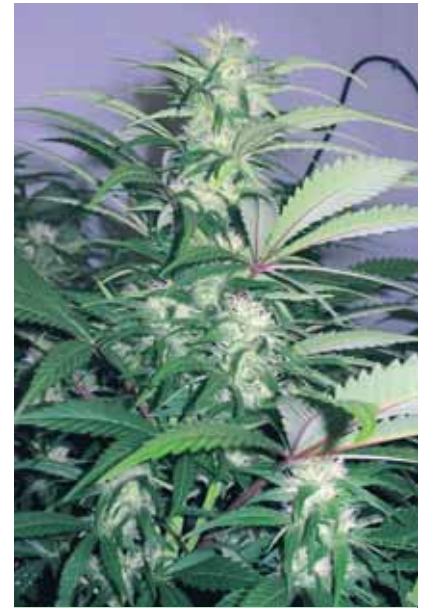
You can clearly see the difference after just a week. The plants on the drier coco are much further in their development.



The plants that are right under the lamps are still the biggest, despite the presence of the heat shield.



An overview of the garden full of Jack Herer after 3.5 weeks in bloom..



After four weeks of blooming lovely buds start to form, despite the cooler temperatures.

So this time I'm not going to heat my grow room during the winter months. I am curious as to how the plants will perform. That they will produce something is certain, but the question remains whether this will result in a massive difference or not. How is the THC production of the plant at such temperatures? In any case, I'll get the chance to learn something new, and if seeing is believing, then it's by doing that you learn.

Prior to the bloom period, the plants were given a week of pre-growth. The outside temperatures was swinging between 14 and 18 degrees. The pre-growth serves as the basis of a successful harvest, by taking the tiny clone with its minimal root system or the new-born seedling and in a minimum of time turning them into a strong plant that is ready for blooming. By giving your plants such a period, you get to know them better, because you get to follow the development of their growth pattern better. By giving them too short a growth period you cannot tell immediately whether it is the tendency of the plant to be by nature wide, more branchy or determined to grow as high as it can. So too is the growing force of the many plants harder to distinguish. You must trim your growing style to fit the properties of the plant in question. Otherwise you will be growing the same whether you have a slow-growing or fast-growing variety. In any event, I would advise you before getting down to business for the first time with a new variety to give it a minimum of a week of pre-growth. The knowledge that you will gather will pay dividends in terms of yield in any future crop of the same variety.

Root stimulator

The plants were planted in a coco medium and each given a dash of water with root stimulator added. Prior to that they had been dunked in Nova-Star-T, a beneficial mould that comes in powder form from Bio Nova that you mix with water. Better a good mould in your medium introduced by yourself than wait until a bad mould decides for itself to pay an unwelcome visit to your grow space. I mention this because it is still a big problem that many growers pay so little attention to prevention. Critters can always rear their ugly heads, and even an over-confident grower who has never had any trouble with them will one day find unwelcome visitors to his patch. You never check your plants for visitors, and when they do eventually show up you're already a good way into your bloom and there are shimmering buds on your plants. In the worst case scenario you begin straight away spraying all kinds of noxious products that do not exactly promote good health.

Or you could approach the problem another way, by preventative spraying during the growth period or at the beginning of the bloom period with an organic pesticide. If you did have critters already then they would be here already, only you would not know. Preventative spraying is the best option to make sure that no plague breaks out to force you into breaking out the heavy duty chemicals. And why would you do that? Because your yield will be much higher, because the plants have never had any bug trouble.

So the plants are watered once and after this you wait as long as you can before giving them any more water. The medium can now dry out nice and slowly, and at the same time the root system of the plants will develop wonderfully well. With the medium drying out more and more the roots have to grow deeper and deeper in search of moisture. So it is well worth leaving them to dry out for four or five days. It is not very logical to give another watering after just a few days, because the plants at this stage cannot take up very much water anyway, and neither do they need very much either. As the size of the plants increases and their development progresses, so too will their need for water increase. Before then, remember that too wet a medium can be damaging to the growth of the roots.

Lovely ladies

Because cold conditions during the growth is certainly disastrous for the plants' development, the lamps were programmed on a 24 / 7 regime. In layman's terms this means we have the lamps on continuously. In this way we ensure that there is a constant temperature in the space without us having to use extra heating. By switching from a 24 / 7 to a 12 / 12 as we switch over to the bloom period, you get a strong and sudden drop in the number of light-hours, which serves to strengthen the bloom of the plants.

When you work with clones and grow them on a nutrient-poor medium, then you can see signs of the leaves turning

lightly yellow. This is a good thing and nothing to get concerned about. What they are trying to say is that the clones are doing well and have begun their growth. They need nutrients in order to achieve a good growth and for that reason they are sucking the nutrients out of their own leaves. Simply giving them a light feed with liquid nutrients for their growing will solve this problem in no time. The plants develop further very nicely and after a week of growth will have grown into lovely young ladies that are just bursting to bloom...

Adjust-a-wings

With all the new products that are coming onto the market it is not getting any easier for the grower to make choices. This is why I am going to do my best to take a closer look at some of these products and compare theories with practice in order to ascertain with my own eyes what might be beneficially used for future harvests. Since everyone wants to maximise their harvest I thought I'd start by giving the 'Adjust-a-Wings' a whirl, given that I like the sound of the whole concept. A better reflector is a simple way of stimulating the bud production, I reckon. So it was off to the local grow shop...

The 'Adjust-a-Wings' are very light in weight and simple to install. On each side of the wing there are four holes with which you can determine the span position of the wing yourself, from very wide to concentrated. In this way you can determine the strength of the light by letting the wing reflect onto a large surface area or to rig it so that it shines on just a single square metre. I opted to set my wing's span at the third hole, because the plants would then get the full does of

Too wet a medium hinders the growth of the roots.

light. Because it does indeed seem that the wing can be allowed to hang much lower than a regular reflector. It should be mentioned here that I also used the heat shield that could be mounted beneath the lamp.

The wing in any case covers a much larger area than a regular reflector. The heat shield makes sure that there is almost no strong, dry heat produced

Of course it is also important that there is good air circulation in your grow space. This determines to a large degree how low you may hang the wing. With

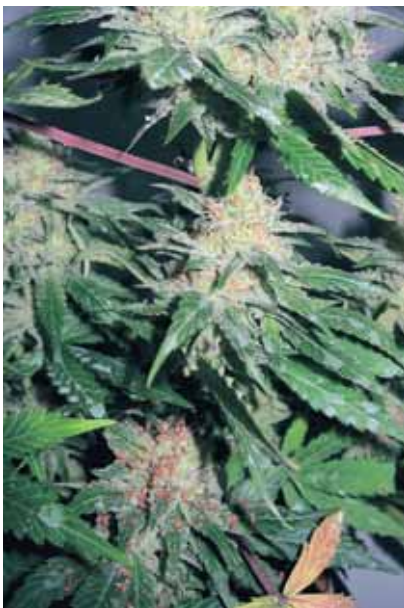
They need nutrients to achieve a good growth and so suck the necessary nutrients out of their own leaves.

under the lamp, which in turn would force the lamp to be hung higher. Just stick your hand under a lamp and you can feel the heat beating against it. The lower you move your hand, the less heat

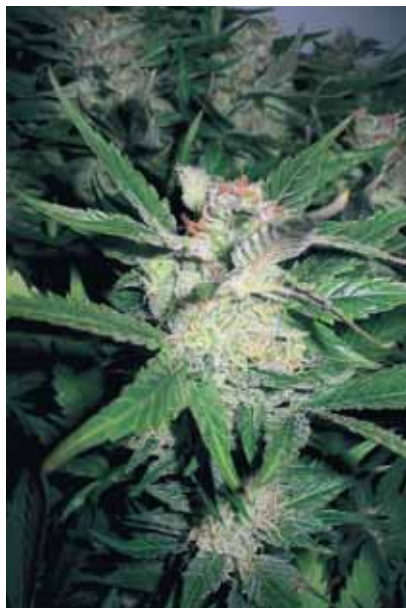
good ventilation and air circulation you automatically ensure that there is less heat that has to be dissipated by the wing. It is most likely that it is thanks to the heat shield and the shape of the

At first sight the plants seemed to be blooming quite powerfully. The THC production was running flat out, so it seems that not only does a plant protect itself by making loads of THC on hot days, but also during colder days too. The result did not disappoint either, as there was an abundance of sticky THC on the small and on the large leaves. So there's no need to fret about the quality of your plant. Whiter than white. It was noticeable that the plants were a little smaller than usual thanks to the lower temperature. As you already know,

you now start following the ec values as laid out for bio-mineral nutrient, then within a short time you will be dealing with a nutrient deficiency. So if you have an ec of 2.0, make up the bio-nutrients at half the recommended strength. That is why you should never blindly follow certain grow plans and stick to the stated values. A plan is a good guide, but no more. Also when it comes to growing styles and techniques you are best off listening to as many growers as possible and getting your hands on as much information as you can. All this disparate information you can then use



A ripened plant with buds crammed with THC. Thanks to the ventilator a few strands of coco have been blown on to the lower-most bud.



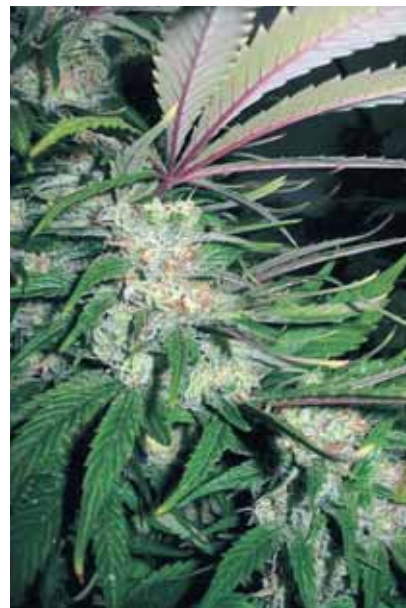
There's nothing wrong with this baby!



A close-up of a tasty bud.



A collection of dried buds, ready for being graded.



After eight weeks of bloom the time is ripe for some trim work.

it can feel. So there is an optimum height at which to hang your lamp so that the highest buds of your plant do not come into contact with the really hot, dry heat, otherwise you will burn them, and this is not something that advances the development of your buds. Strangely but true, a heat shield does really reduce the impact of this heat considerably.

Good air circulation

A 600 Watt system can be hung as low as 20 cms above the top buds without any problems. I have tried to hang one as low as 15 cms, just to see how far I could push things. Even at this height I did not get any burning of the buds, but even so this height is too low because there were signs of heat stress. You could see that the buds were producing fewer white hairs and that they were being distressed by the heat. With a regular reflector at this height the buds would have been completely dried out, crinkled up and burnt. So it is true that a wing can be hung much lower. The closer you can hang a reflector to your plants, the stronger the intensity of the light will be.

What's strange is that the heat shield means that the plants directly under the lamp get less light and that the light is scattered more to the plants around the edges, which ensures that you get a more even garden with more plants of the same height and size. True, the plants just under the heat shield appeared to still be the biggest, but that could have been coincidence; only the future will tell. But in short, the fear that the plants under the heat shield would develop worse seems to be unfounded.

wing that the heat that is produced does not get reflected down towards the plants but upwards. If the wing has been placed at an ideal height of between 20 and 25 cms, then with just a small Honeywell ventilator you can blow breeze between the buds and the wing, to lessen the stress for your plants even more.

But I still cannot say for definite whether the adjust-a-wing will deliver a clear improvement in yield. This is thanks to the fact that I have not been using any heating during the cool nights, thanks to which the temperature fell below what is considered suitable. So no perfect climate, and so it would be dishonest to have an opinion for definite. But I will come back to the wing in future editions. Either way, I am in a position to state that a wing does deliver at least as good a yield as with a regular reflector, and so it does represent an outstanding purchase for any growers who are having trouble with heat stress. A wing with a heat shield produces much less heat – and that is a certainty.

Experimenting with cold

The plants developed at a rapid pace during the bloom, and the Jack Herer displayed plenty of white hairs. Once the fourth week was well and truly underway there were reasonably big buds sitting on it. Certainly not bad and at the same time promising. During the nights the temperature fell to around 8 degrees, which is not what you'd call perfect, but I did still want to see the difference in yield this would produce.

the plants grow strongly during the first three weeks of the bloom, after which the bud development takes precedence over size increase. This also depends to a large extent on which variety you are using. One variety develops very quickly in those first few weeks, while another variety only starts to put most of her weight on in the last weeks. Generally

The plants develop at a rapid tempo during their bloom; the Jack Herer is already covered with white hairs.

speaking, it is the fourth, fifth and sixth weeks that are the most important weeks of the bloom. During these crucial weeks the buds really explode and you can already see what the eventual harvest is going to look like. The eventual yield was pretty good, but of course it was no record breaker. But I did still get more than 0.5 grams per Watt. The nutrients were eased right off in the last weeks and the plants drew everything they needed from the leaves, which were turned yellow as a result.

Organic feed

The Jack Herer was grown in coco and was fed with organic nutrients. With organic nutrients you cannot stick to regular grow plans as regards the ec levels. Ec is the measured contamination of the water and the strength of your feed that you're giving to your plants. Most pH and ec values stated in plans are formulated for bio-mineral nutrients. Bio-nutrition contaminates the water quite a lot more, which means you immediately start off with a higher ec. If

to find your own path through the growing maze. Listen well, and work on the points that you think are worth incorporating into your system. In this way you will be able to find out in practice what works for you. There are nowadays so many grow methods, techniques and products on the market, and there are more and more coming out. Furthermore, the technology

of growing never stands still, so it is not possible to try everything out for yourself in any short space of time. So start off with a simple basic growing set-up and a few products – a system that you feel happy with and will enjoy. Once you have this under your belt then you can start to introduce new ideas and products in your grow space. The best and only way that works to really experience the effects of a product is with a side-by-side comparison grow. This is to say that a only certain area or half of your plants is given the new product, while the other plants stick to the good old tried and trusted method. All of course in the same space with the same climate. This is all too infrequently / rarely done. At least this way you know whether your money was well spent and whether the product is worth using in the future or not. The most important thing of all is that you share any useful information with your fellow growers in order to help save them the waste of money on useless products. Or alert them to something that really does offer advantages. Either way, let your comrades know the results of your tests...

Grapefruit from Female Seeds

Bart B's test grow *By Bart B*

It's the time of the year in which seeds are more popular than clones. Many outside growing sites are planted with exotic varieties, because of the long outdoor growing season it has become more of an advantage than a disadvantage to grow from seed plants. Because an indoor garden has to be productive and every plant preferably a female in order to achieve really explosive yields, this time around I'm going to take a look at female seed, and wonder: is it a dream come true or just a nightmare?



After the seeds have spent a few days in stone wool in a warm, dark place, you will get lovely seedlings like these.

Choice is luxury, and given that the clone market is mostly dominated by a limited range, there's little else for it but to roll up the sleeves and get to work with some seeds. Because if you like variety and enjoy a new taste every couple of months, then growing from seed is strongly recommended. Of course, as with everything else in life, there are advantages and disadvantages attached. Seeds remain viable for a very long time and can be safely stored in a dark, cool place. Stored in a fridge, for example, they can be germinated after several years. Compared with clones, seeds are also much easier to transport, of course, making them easy to take across borders.

It remains a source of fascination to me that packed into such a tiny seed there is such enormous life force. The whole trajectory of that life, from seed to the final smokeable end-product, is a thing of wonder to the eyes. In any case, as a cannabis lover you are spoilt with at least several hundred varieties of top class genetics to choose from, with more

coming onto the market all the time. It is quite clear that there simply is not enough time in one lifetime to raise and test every variety yourself. Shame. Unless you are totally hardcore and have an enormous space at your disposal in which to grow many varieties at the same time, and this is a situation few people can claim to be blessed with.

A delicate process

There is a great deal of difference between growing from seed and growing with clones. The knowledge is so limited that many growers do not see the difference between a plant grown from seed and a plant raised from a cutting. Just as a clone has to struggle for survival in the first few days it is transplanted outside to your growing patch, something that happens more successfully with one grower than the other, so too the germination of the seed remains a delicate, touch-and-go process, one which with a bit of experience can go a bit more smoothly. A seed needs sufficient moisture in order

to germinate so that the rootlet can burst through the seed husk, begin to develop and set off in search of more moisture. Sufficient oxygen ensures a decent root development, so oxygen-rich media will therefore create more rapid development.

you know, tropical plants shoot up like lightning. In other words, you will save a lot of time and ensure healthier and stronger seedlings if you use a cloning tray. You do not necessarily need one for germinating your seed, because this will

To much moisture will limit the growth of the roots, because why would the roots want to wander off in search of moisture when there's plenty right here where it is now?

At the same time it is important that there is not an excess of moisture. An excess of moisture will limit the growth of the root, since why should it go wandering off in search of water when there's plenty of the stuff right where it is? Keeping things too wet can severely retard the growth of your root system, or in the worst possible case, even lead to root rot.

Different methods

There are different methods for germinating seed which all work well, but of course one method is better than the other. Especially for beginners I advise against the kitchen paper method. This is simply because it is really easy to give the seed too much water, and if you then compensate and give it too little water, the seed easily dries out. The majority of growers manage around 80% germination with this method, but it is certainly not foolproof, which means that many people will fritter away quite a bit of seed using this method.

Temperature

Do not forget either than one of the most important factors in germination of seed is the temperature. A constant temperature of 22 to 25 degrees C. gets the seeds bursting forth, higher temperatures of 27 or 28 degrees C. can create a more rapid development. Some seed varieties need an even higher temperature to germinate properly. A simple plastic tray, also called a clone box, is a must-have if you're going to work with seeds. A clone tray serves to help seeds take root by promoting root development. Thanks to the high air moisture content and suitable temperatures found in such a tray, they create a mini-tropical climate. And as

occur just as well without. But the quality of the seedlings that sprout will be much higher. And a good germination is half your work done for you.

Stronger development

So what you have at this stage is small seedlings with a limited root system, but when these are compared with clones, their development is stronger. So seedlings can stand up better to the high power HPS lamp than a clone that has just been planted. A seedling is still fragile, and does not need many nutrients. In fact too strong a dose of nutrient will be more likely to retard the growth of the plant than have any positive influence. So stay your hand and use a very weak solution if you are growing on a nutrient-poor medium, to which you do have to add additional nutrients..

Variety

Every seed is unique, which means that every plant you raise will and its harvested smokeable end-product will be different. It is just one variety, but with different tastes, heights, yields, appearance, and so forth. The more uniform the strain, the less variety there will be, but you will always find different phenotypes within a particular variety. Every smoker will have his or her own preference for a phenotype within a particular variety. Many growers have never grown from seed, especially the more commercially-oriented ones. This ensures that they are missing a huge chunk of knowledge. Because if you have never grown from seed, then you will not be able to properly recognize and appreciate the quality of a good clone.



The seedlings undergo a smooth development, shown here after one week of growth.

A clone is a copy of the mother plant from which the clone is taken from. The clone will have more or less the same properties during its growth and blossoming, and so grow and bloom more uniformly. The choice of the mother plant is therefore of great importance. Because anyone can learn how to make a clone, but learning to select a good clone takes a bit more experience. And this is something that is absent in many growers. If you then would take the time to try and raise a few seed plants then it would be much clearer to many growers what is most worth looking for in a good mother plant. Because which clone would you rather have in your garden: one that yields 20 grams or its better selected sister who in the same circumstances yields 40 grams?

Raising yields

If you want to strongly improve your yields then you do it not by hanging extra lamps or planting extra plants, but make sure you are starting with a good clone as your basis. Growing with inferior plants leads to inferior yields. A commercial grower can also achieve top harvests growing from seed by changing his growing methods drastically. Rather than working with a large number of tiny plants you can do just as well to grow a few mammoth plants with a longer growth period that can take advantage of higher levels of light. Then you have plants 1 metre x 1 metre x 1 metre, which will produce enormous quantities of smokeable material – certainly enough to warrant the longer growing period. These plants will also be healthier and stronger thanks to their better development. Thanks to these qualities they will be better able to withstand and flourish in the great heat that many grow rooms generate.

Female seed

100% female seed: a utopia or something that is realistically achievable? The ‘Female Seeds’ seed company produces female seed, among them varieties such as Grapefruit, Easy Bud, White Widow, and so on. Since around the world a lot of these seeds have already passed over the counter, with very good results and the seeds have also in actuality been females, it seemed to me at a certain moment that I would also like to give



After a week and a half of growing the seedlings really start to pick up speed. They are already real plants.



A close up of a plant after a week and a half of growth.

these new female varieties a twirl. Because I too have bought female seeds from which eight female plants appeared and two hermaphrodites, plants of two sexes in other words, otherwise known as the hidden evil that tries to fertilise your female garden. This is not something you want to have to deal with.

Not a bad start

I always assume that when working with female or feminised seed there will be some hermaphrodites among them. The difference from regular seed is that you can assume that you will always get a high percentage of female plants,

Do not forget that one of the most important factors in germination is the temperature

and then all you have to do is seek out the hermaphrodites and weed them out. You do the same with regular seeds to weed out the male plants, but then you are not always guaranteed a high number of female at the end. Planting female seeds and walking away without taking a closer look at them is asking for trouble. You have to always check up on them to make sure you have not been the unlucky one who has ended up with an hermaphrodite in his garden. So my grow patch is currently filled with female plants of the Grapefruit variety from Female Seeds which should therefore be 100% female.

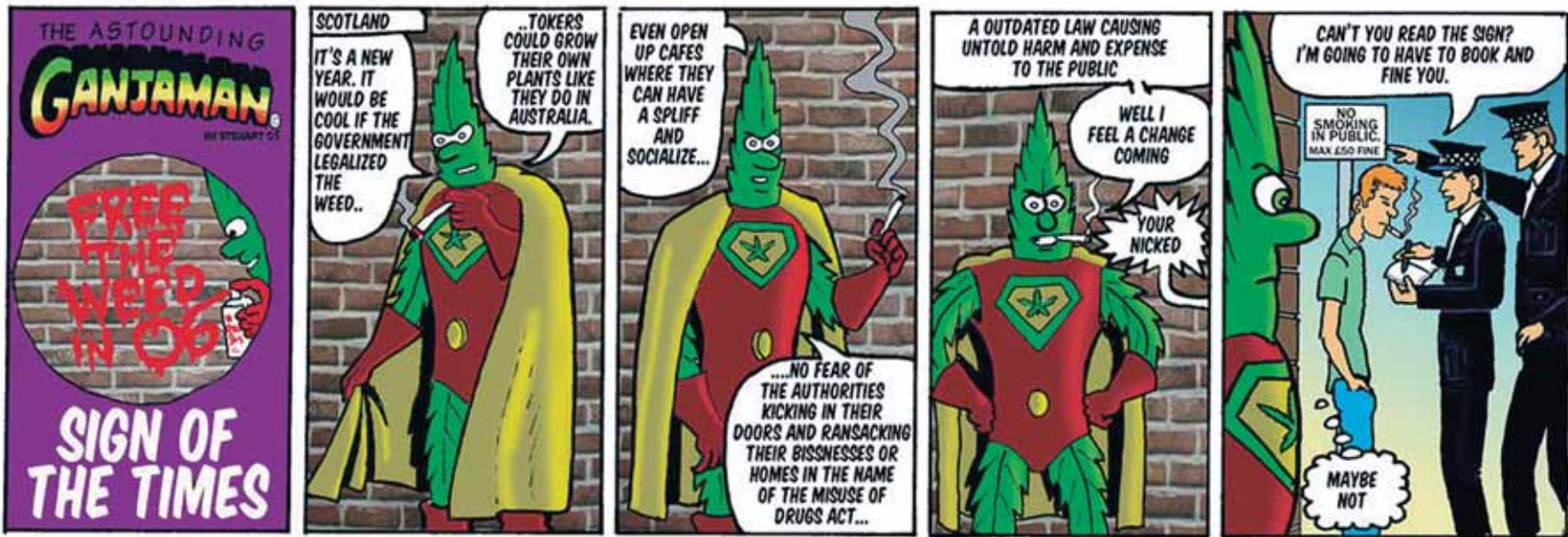
Of the 20 seeds I had, 17 germinated. I could see that the others were also germinated but that they were evidently not going to develop much further. So not a bad start then; a score of 100% is of course always nicer, but you are working with living seed and so you are never guaranteed total success.

From stone wool to coco
In any case, the seeds were germinated in stone wool blocks. A few days after they had germinated they were transplanted into a coco medium. The well-aerated coco ensures a good root development in the plants. Once they were planted they were doused once only in water with Hesi Supervit root stimulator mixed in, along with a double dose of enzymes and no nutrients. The reason why I add a double dose of enzymes is that the coco had been re-used from a previous grow.

The seed plants developed very well and according to the growing plan. In this respect they appeared very positive, and they showed signs of very good growth development. Whether the final experience will be positive depends eventually on degree of femaleness of the plants themselves. In any case the Grapefruit is a sweet weed with a strong, pleasant odour of grapes. Wonderful. I know this because other growers have been here before me.

Before I can produce an objective report on these seeds I need a bit more time. A golden start has been made. I look forward to telling you how it all turns out with my Grapefruit in the next edition.

Stay tuned!



Female Seeds' Grapefruit

Part II

By Bart B

In this follow up article about female seed, you can enjoy the first impressions and experiences I had with the Grapefruit variety from Female Seeds. Has the male macho-nightmare come true, or can we sleep peacefully and dream of a lovely – female – top harvest?



Young bloom.

The Grapefruit seeds have already been in bloom for a few weeks, and pretty white hairs are developing on the branches of each plant. It has begun; bud formation is in full flow. In comparison with clones, plants that originate from seeds take a bit longer to get to speed, probably due to their being brought in to bloom at an accelerated rate. After all, a clone is several months old already, while the seed plant has only just sprung into life. By giving more growth to a seed plant (allowing the plant a bit more time to age) the bloom development will proceed a bit faster. By way of compensation; once the seed plant does begin to bloom, it goes like a train, making up for the lost time.

Sativa

The Grapefruit plants have had about a week and a half of growth and are showing reasonably clear signals of their phenotype. Given that Grapefruit is a sativa, around 70 percent of the plants show sativa, while 15 percent lean more towards the indica, and the remaining 15 percent are somewhere in the middle. But this can vary from grower to grower. So it is quite possible

that one time you will get more indica influence, while another time with the same variety you might get more sativa. Everything depends on the uniformity of the variety. The more stable the variety, the more similarity the plants will show that come from the seed. The

Grapefruits that contain more indica were at the beginning considerably quicker in their bloom development than the sativas, and they stayed quite a bit shorter. These should probably have been brought into bloom a week earlier than they were.

The plants reasonably soon developed a nice white layer on their leaves, and the smell from them was formidable. In any case it seems that all the female seeds did indeed produce female plants. A fantastic result, given that with some brands in the past one used to often get male flowers sprouting between the buds of the plants. I reckon on about 10 percent of my plants I did find a single male flower that had developed during the pregrowth. These you just have to remove, and the male flower does not grow back. It seems that there is more chance of getting the odd male flower here and there if you give them too short a growing period. Tests have shown that by giving them a longer growth you can largely eliminate this.

Sensitive to stress

Female seed is generally pretty sensitive to stress factors. But apparently this variety can stand up to it pretty well. I know because I had to pop away for a few days and made sufficient feed water up to last them through the period. So they were standing for a few days in a tub, I found out when I got back, filled with way too strong a feed water solution, which is obviously not a good thing to

The plants reasonably soon developed a nice white layer on their leaves, and the smell from them was formidable.

try and give any plants. In retrospect I should have just given them ordinary water with no added nutrients, but at the time it did not occur to me. When I got back the plants were obviously suffering from over-fertilising. But it was not very serious; I just had to flush them through to remove the excess nutrient, and the plants got straight back to a reasonably normal growth. A few plant did have some trouble from burning symptoms. The

in other words are comparatively stress resistant, something which again is something of a disadvantage as well as an advantage. It was a good test of the female seeds, which did not go all hermaphrodite (showing both sexes) on me. A few weeks later the plants were busting only with white hairs and not a male flower in sight. Fantastic!

Different sorts

In the Alien grow shop in IJzendijke you can visit live female seed being grown in their showroom. Besides offering a good growing guide they also try and show their customers what the results can be achieved with the products they stock in the shop. In total their little garden consists of four different varieties of female seed, they being a Female Seeds Easy Bud, a Grapefruit, a White Widow and a Cinnamon. It's lovely to be able to see what the different qualities of each plant are, and customers are able to observe for themselves the different growth- and bloom-patterns each variety displays. Because each variety does grow and bloom with differences and similarities to each other.

More growing power

The seeds were planted immediately into their medium, which consisted of an earth mix - B'Cuzz soil, to be precise. After about five days the seedlings popped out. The easiest to spot were the Easy Bud, an indica with very short and fat stems that were rather bushy, so

showing typical indica characteristics. The White Widow was already a bit bigger, but less leafy, which also meant that the under-most buds got more light. It might be an idea when working with Easy Bud, if you think it's necessary, to remove a few excess leaves.

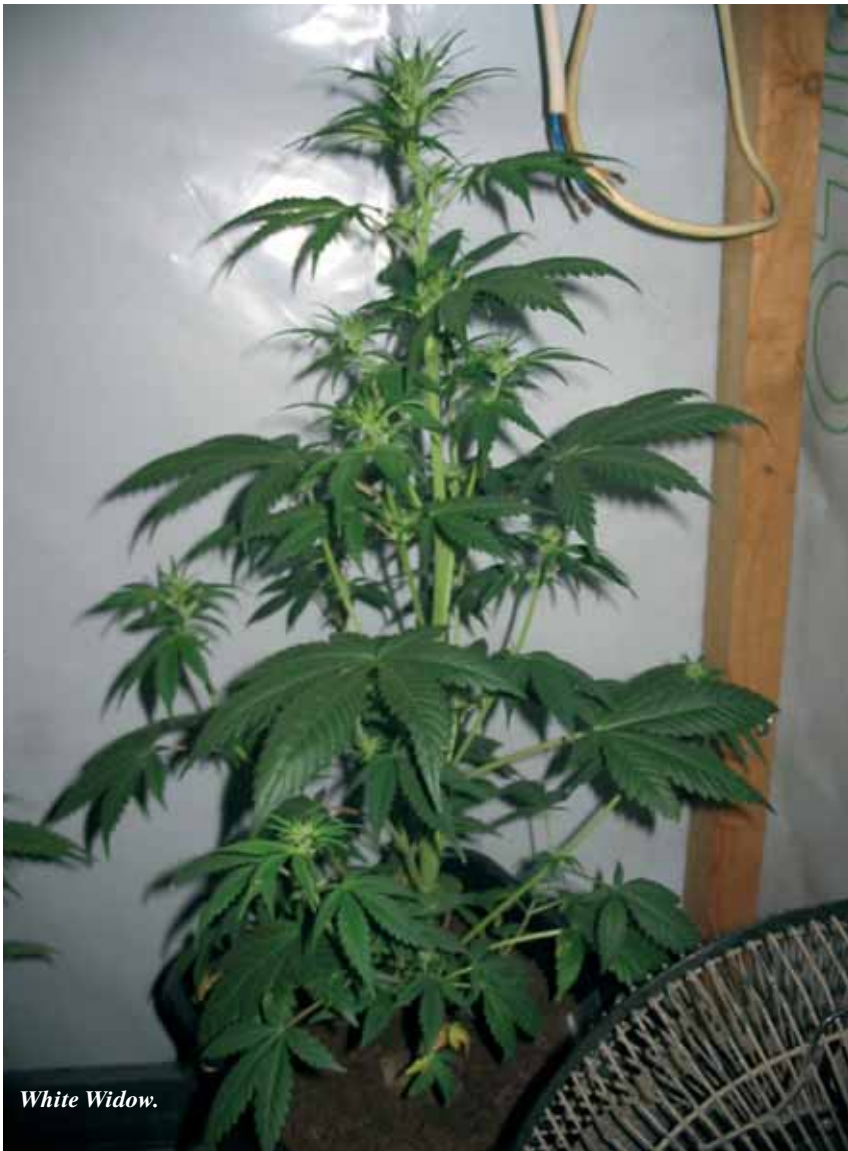
Then you have the sativas, which clearly have more growing power in them. That's why I topped the Grapefruit, and it still became a really strapping plant.



An overview of a Grapefruit.



A topped Grapefruit.



If you have not got much headroom in your grow space, then this is a good idea to do, since Grapefruit has the potential to become really big. This plant does in fact produce a delicious grapey smell. That alone makes it worth the effort-to find a place in your garden for this plant sometime. If you like sweet and fruity, this baby is a winner.

It is important to know also that particular varieties function in certain growing systems than in others. So it can depend on the system you plan to use or the number of plants you plan to raise whether you are better off using indica or sativa plants. Each type has its own qualities.

The plants in any case were put on a 12/12 regime as swoon as they

germinated; they were not given any growth phase. Mind you, all the plants had turned out to be pure females, and had not shown a single masculine pre-flower. But just to be sure of course you must always check for yourself.

Unique

The plants still have a few weeks of blooming ahead of them, and things are looking promising. The differences in bud formation between the indica and sativa Grapefruit are clearly visible. The sativa begins with a loose bud structure, which after a short period of time begin to bloom into each other and form a crown bud. The indica straight away makes a heavy bud. In any case, it's great to be able to watch a seed set to work like that, because clones

Cinnamon.

can get a bit monotonous can't they? It doesn't make much difference whether it's a female or a regular seed. A seed plant is always unique, time after time. Consider this: with outdoor growing you are constrained in the number of plants you can raise in your patch, and if you really do like variety then it really is worth the trouble to instead of just planting the same old clones (and then having to smoke the same stuff all year), to once in a while plant some exotic female seeds. With regular seed after all your have to quickly raise up to four plants just to make sure that you have at least one female plant to make it into your garden.

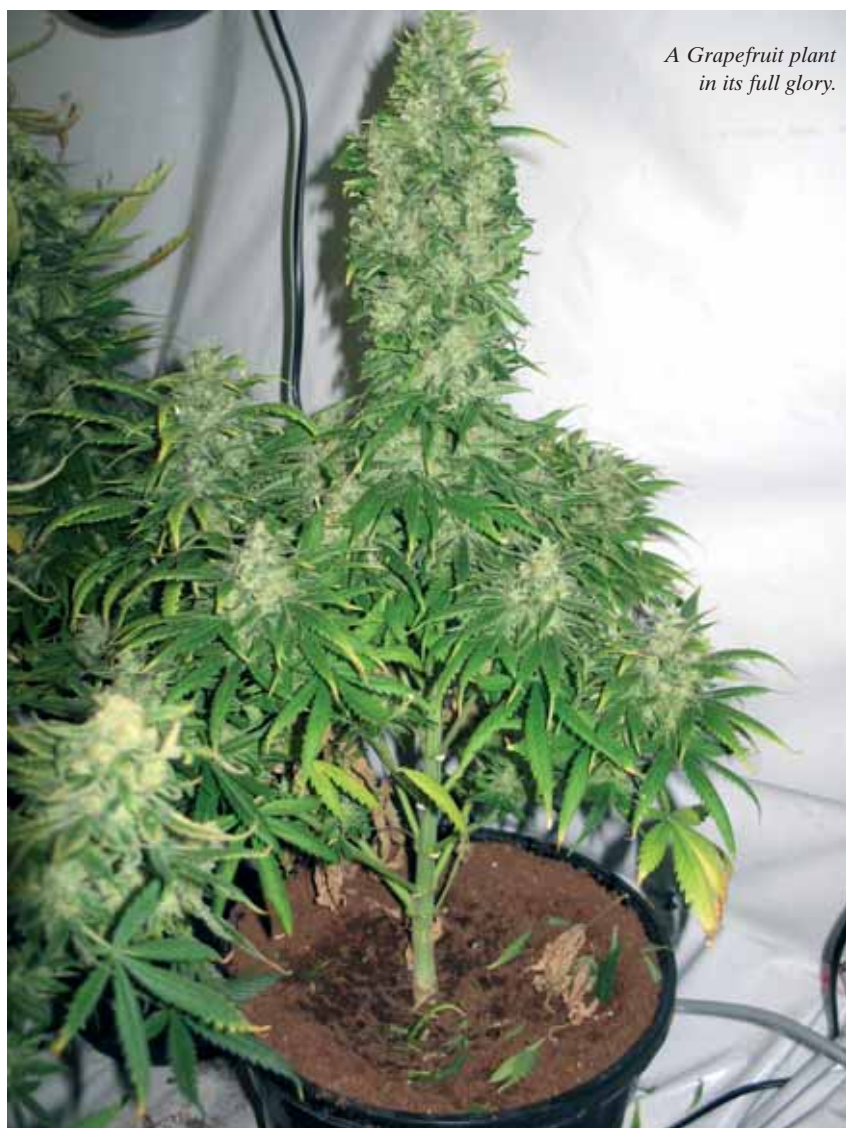
In the next edition I'll be giving you the final outcome of this experimental Grapefruit grow. Then in all probability I'll make some nice water hash.

Did you know that it is not the number of plants but the total wattage of light that most determines the final size of the yield you get? So you can grow a large number of plants in your room of limited space, while your neighbour grows half the number of clones in the same sized room, and the eventual yields both of you get will be nearly the same. In short, don't as a grower get too hung up on the number of plants you're growing. Better to grow fewer plants that are healthy and can get access to as much light as they need than to cram as many in as possible. These would just end up smaller in size and competing with each other for light.



Female Seeds' Grapefruit By Bart B

Explosive bloom leads to huge buds *Part 3 - Final*



A Grapefruit plant in its full glory.

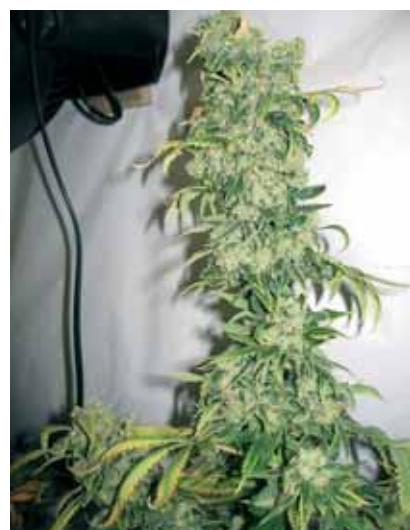
The female adventure has come to an end. What began with a weak start ended in an explosive bloom. Conclusion: despite the fact that female seed is still not 100%, you can indeed still get superb results with it. But even after the lovely buds have been harvested the work is still not over. There is still the leaf material left over to process. How this all happens you can see for yourself in this last chapter all about Grapefruit plants raised from all-female seed.

The last weeks of the bloom are underway; the bud development has been proceeding apace since week five. In the first weeks of bloom things still looked a bit skinny, but since then the clones had come along in their development quite a bit and were already starting to carry nice fat buds. If you work with seed plants this is a normal occurrence. It is during the last weeks of blooming especially that the bud growth comes on really strong, so that by the end they will have developed really cracking buds. So there is no real reason to worry if your cloned plants around week four have much bigger buds on them than the seed plants.

High yields are possible

The female Grapefruit plants have great potency and spray a lovely layer of THC over the buds as they are bathed

in HPS-light. By the end, the Grapefruit had even astonished me with the size of their buds. From almost nothing in week four, by the end of week eight they had developed these elongated buds of a good 25 cms in length. So there are definitely good yields to be had with Grapefruit. But you do need to make sure that you have started out choosing a good phenotype. If you do decide to plant some Grapefruit seeds and want to take clones from them, then you are best off letting your mother



Indica Grapefruit with hard, THC-rich buds.

plants or the clones you took bloom fully so that you know what you can expect. The differences between them can be so great; one plant can give you a considerable amount of weight more than another plant. As I wrote earlier, you could easily choose to raise Grapefruit simply because of its lovely smell. After the harvest too, when you are crumbling up the cannabis, there rises a delicious, sweet-fruity smell. Simply glorious, and a welcome variation to the regular cannabis buffet. For me, the Indica pheno was the best plant in the garden. It was finished with blooming after eight weeks and made rock hard Indica buds. And all this while still managing to retain the Sativa qualities. It was this one too that managed to spread around the strongest typically Grapefruit smell. Grapefruit has the inclination to make a single huge crown bud, with this then ringed by a load of medium-sized buds. I therefore reckon this would make a good candidate for a SOG (See

visible crystals on them we end up with only the better quality leaf trim and spare ourselves some hassle. Because 200 grams of leaf with no crystals on it will yield precisely nothing useful. And you will spare yourself the false hope of gathering a large pile of leaves only to find very little coming out of it.

It is very important to make sure that the leaf material is really dry by the time want to separate the crystals from the leaf material. It doesn't matter if you're making water hash or making skuff (dry removal of crystals from the leaf by using a drum sieve). The drier the leaf material, the easier the crystals will be broken loose. The wetter or fresher the leaf is, the lower will be your eventual yield, plus the quality will be much higher using fully dried leaf.

Powder dry

When you are making skuff it is extremely important that the selected leaf material is powder dry. Just 'dry' is not enough, otherwise you'll get nothing out of it and this would be a great shame. The leaf material must not only feel dry to the touch, but must also crumble easily between the fingers. It can take some time before

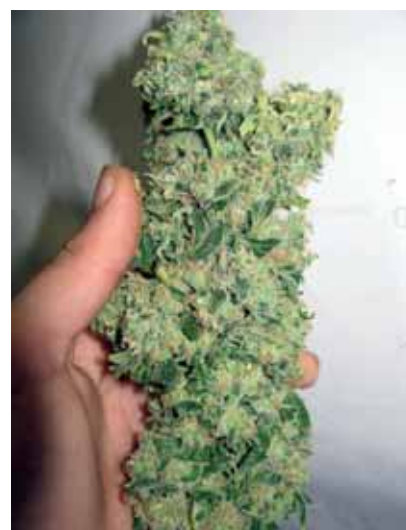
Grapefruit has the inclination to make a single huge crown bud, with this then ringed by a load of medium-sized buds.

Of Green, ed), which means that we could get a whole load of plants per square metre and put them into bloom after a very short or even no growth period. The plants should then make a single huge bud, and this is something Grapefruit is certainly capable of. After giving them about a week, week-and-a-half of growth they will quite easily make buds that are much bigger and wider than a beer bottle, and a little slimmer than a 1.5 litre bottle of water with approximately the same length.

Hash

As we should, we save the large amounts of leaf waste that we collected from trimming the buds. We only need the THC-rich trimmed leaves. By discarding the larger leaves with no

the leaf material is really dry enough, so also make sure that it is drying in a space that is not damp. Also make sure if you decide to save the dried material for another day, that it does not re-absorb too much moisture. That is very important if you want to get the maximum yield from your leaves. Whether you take the leaf material to your favourite shop to get it sieved, or whether you do it yourself at home, either way it is recommended to first let your leaf material spend the night in the deep freeze. By doing so the crystals will break loose much more easily. The average yield you can expect is about ten percent of your bone dry leaf material. Of course this depends to a large extent on the quality of the plants you grew. It is very possible that you can get 16 percent or more with a very



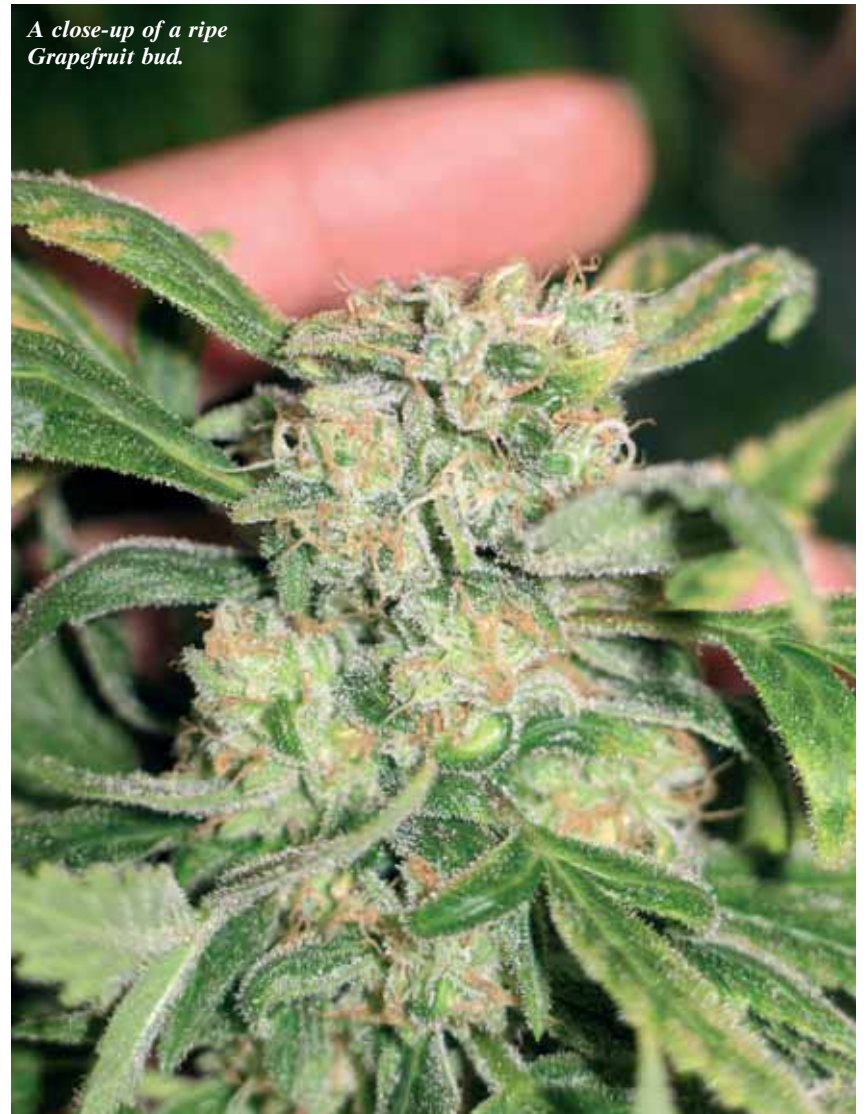
A freshly trimmed Grapefruit bud.



A bud from the more Sativa-dominant Grapefruit



A Jack Herer clone that's blooming next to the Grapefruit.



A close-up of a ripe Grapefruit bud.

good quality leaf. With outdoor weed it very much depends on the sun levels how many percent you get from your leaf material. Logically you should get more crystals in a better summer than in a rainy summer or autumn. But if you manage to get ten percent from outdoor weed you can count yourself lucky.

Bubbleator

Making water hash is a real experience and is recommended for all the experienced and less-experienced hash lovers among us. It is a real palaver and does take a lot more time than the 'traditional' hash tumbler, but you will be rewarded with a uniquely high quality piece of hash. In particular, the setting up of the mixing system (so that it can churn safely without you having to watch over it the whole time) and finding a suitable bucket can pose a lot of problems. These days the Pollinator Company has brought on to the market the Bubbleator system, which means we can get our hands on our water hash end product more easily and quickly. Before this came along it often happened that the hash maker was starting out with the wrong mixer. They mixed the leaf material with a beater with sharp edges, thanks to which the leaves were mashed to a pulp, and that was not the intention. By using ice-cold temperatures and a light beating, the crystals are separated from the leaf material more easily. The advantages of the Bubbleator are that it replaces the mixer and is actually a mix system more like a washing machine. Very handy, because now you don't have to search for a

suitable food mixer. What's more, it is a safer way of working, given that the chances of something bad happening with the mixer unit are no longer applicable. Thanks to the typical way the Bubbleator manages to separate the crystals from the leaves - in a more gentle manner - the quality and therefore the purity of the water hash is increased. The Bubbleator can also be pre-programmed to churn for about 20 minutes per go, and the device can be fitted with a lid so that everything stays nice and tidy. Extras for the Bubbleator include a sieve and a thermometer.

Up to 500 grams

How the mixing of the leaf material actually works is hardly any different from the traditional method using a mixer - we fill the Bubbleator with ice cold water and ice cubes. What is new is that we are given an extra sieve, in to which we can put up to 500 grams of dried leaf material. This sieve is then placed in the machine. After that there is just the simple task of setting how many minutes the machine is to churn. The leaf material is now churned and the crystals will break free as a result. After one or more runs we can tilt the Bubbleator so that we can see the crystals. On the side of the Bubbleator there is a small plastic tube. By lowering this we can siphon off the water in to a bucket in which there are Ice-o-lator bags (or something similar). Once the Bubbleator has been drained it is a good idea to pour in another bottle's worth of water to rinse it, since there are likely to be plenty of crystals left on the bottom of it. Also do not forget to take out the sieve bag

with the leaf material in it out before all the water is drained off, so that the crystals are not left stuck to it (though if this does happen it is a simple task to wash them off). As you probably know already, the first sieve in the Ice-bags

do this a week later at the end of your harvest, but then the coco remains wet. By doing the rinsing a bit earlier the plants have enough time to suck all the moisture out, so that when you actually harvest, your coco will already be

By the typical way the Bubbleator works the crystals are separated from the leaves in a more gentle manner, thanks to which the quality and therefore the purity of the water hash is increased.

holds back the larger leaf material and only lets the crystals through. The first sieve will still trap small amounts leaf material that have escaped the rough bag. The second sieve bag is the one that traps the crystals and from which we can harvest our hash. We remove the bag from the bucket and press any excess moisture out through the sieve's mesh with some kitchen paper or a small towel. Then we just scrape the crystals together into a pile.

Coco

The Grapefruit plants were raised on coco. And since this medium can be safely re-used if you like, you can step up the dosage of enzymes being used towards the end of the grow cycle. Enzymes are good for dealing with excess salts and dead plant remains. There are various enzyme products on the market, some better than others. In order to be able to do a second grow on the same coco it is a good idea to give the coco a good rinse through a week before the current grow. The plants are now ripening and might well have turned yellow and excess nutrient needs to be rinsed out. You can just as well

nice and dry. This will make its re-use a lot easier. After the harvesting and trimming of the plants then just shaking the coco is enough to break it free from around the roots. This is a bit harder to do if the coco is still wet. Also the plant's early growth will proceed more quickly if we make sure that the next load of plants are planted into dry coco.

A nice smoke

To finish up; there are good results to be had with female seed, but you do need to keep in mind that the quality will differ from seed bank to seed bank, and that you will also have to deal with possible hermaphroditism. Keeping these points in mind will help prevent disappointments and prompt you to keep a close eye on your plants. Whether you set out to work with regular or female seed, the principle remains the same: check your plants well and remove male or dual-sexed plant as they are identified. This is a good reason why you should always plant more female plants when working with female seed. In the meantime, I would really advise anyone and everyone to give Grapefruit a try sometime. It's a damn good smoke...

An indoor grow space in your outdoor garden

By Bart B



We plumped for Power Plant.

The beginning of April to the middle of May is the time for letting outdoor seeds germinate, marking the start of a new outdoor season, with all the expectations and excitement that brings. The coming months will see many gardens filled once again with marvellous, giant-sized cannabis plants that will explode in size. Eventually it all comes down to waiting to see if the weather will allow us to realise a top quality harvest from our plants, raised with all due love and care. In this article we will be looking at how we can turn uncertainty into certainty...

Many outdoor growers have managed to amass a decent collection of seeds either, by buying them, by breeding them themselves or by exchanging them with like-minded growers. There are always a few seeds left over from previous years, and you will have built up experience with various varieties and how they perform in your garden. Whether your plant patch consists of clones, or seed plants for indoors or outdoors, it matters little just so long as you grow a variety that you actually want to smoke. Every grower has his own favourites that have to be taken into account, but that is not always the right variety for your individual personality. Many varieties also get hyped as better than the others, only for you to grow them yourself and

as growers, because during these periods they can gain a huge amount of experience. The outdoor growing experience can be relatively forgiving, and it is not too serious if you screw up a few plants; just germinate a few more as replacements. When you grow indoors such a problem can be more serious, since your plants will probably have been in bloom for some time and you will not have enough time to give your new plants enough pre-growth. In short, any newcomers will always be behind the others.

In a single outdoor season you can try out all the various techniques in one go. You can try bending and topping your plants. You can grow indica varieties and sativa

Outdoor growing is enormously important for those just starting out as growers, because during these periods they can gain a huge amount of experience without having to invest much in material costs.

find that this was a strong over statement and in fact you would have been better off in retrospect having grown something else...

By all of which I mean to say that the choice of seed is a very personal choice, because with all the breeding that has gone on in recent years in the pursuit of ever better varieties, the range of top quality seed on offer is so huge that it is hard to make a bad choice as long as you go to buy your seeds from a reliable seed merchant.

Various techniques

Outdoor growing is enormously important for those just starting out

varieties and experience the differences between the two. You can try taking clones or practice your grafting technique. You can also practice pruning skills. You can get your use of nutrients off to a tee, and deliberately cause an over-fertilizing so that you can gain insight into just how much feeding a plant can take before this happens. You can try and make your own seeds or make your own crosses. You can try out different mediums, such as soil, coco or even hydro systems. And there is a whole lot more you could try out for yourself, a whole load more tests you can conduct - and all in one single outdoor grow season. Eventually, thanks to all this knowledge you will have a much better chance of starting a successful indoor grow patch.

Outdoor growing

For those of you who have a garden in which this is possible, you might decide to swap uncertainty for certainty and create an indoor space in your outdoor garden. You simply build a basic grow space of a size that is convenient and place the whole thing under a lean-to. We need to build a wooden construction that we can cover with black-white foil, and we have to make sure to make air holes which allow air in on the left at the bottom of the construction, and on the right at the top where air can exit, so as

than the many little ones that are grown together crammed into an indoor grow space. In fact, it is something completely different and you can learn a whole lot more than with a more commercial (indoor) cannabis patch, in which you will find it harder to discover the particular properties of a plant, because it has to be put into bloom in the shortest possible time.

Because we are dependent on the weather when we grow outdoors, and because many a grower is kind of allergic to bringing outdoor plants

Unwanted light pollution will mess up the flowering of the plants.

to ensure an ideal air flow. All materials can be picked up at the local DIY outlet for very little money.

Since throughout our spring and summer we do not need to worry about the cold. Thanks to the CO2-rich outdoor air, which is usually fresher, then we can also keep the temperature better under control in the space than if the construction were really indoors. What is important is that we make absolutely sure that the whole thing is completely light-proof. Unwanted light pollution can and will disturb the blossoming process in the plants.

indoors (thanks to the danger of possible unwanted guests that might ravage their pristine, pest-free indoor space), we are therefore going to use this 'indoor space in your outdoor garden' construction. We are essentially going to use the outdoor garden space as a growing room for our chosen top varieties to do their pre-growth in. In contrast to the indoor space where we mainly grow one single variety, because this is the easiest way of gaining the biggest harvest, here outdoors we are not bound by this, and so can enjoy sowing a rich selection of different varieties.

Seed or clone

But why would you want to build an indoor grow space outdoors anyway? The advantage of an outdoor garden is that you can raise 'real' cannabis plants that can develop themselves more freely

In the garden I had a few clones of Power Plant sitting around, some outdoor plants grown from seed and a few indoor plants also grown from seed. The plants grew steadily and without incident



When they were about 30 cms high the Power Plants were topped

under the shining of the spring sun, which created temperatures above 20 degrees. If you are planning to keep the plants outdoors for the whole grow and blossom then we need relatively large pots for them – at least 30 to 70 and even up to 90 litres. The plants grown from seed and the plants grown from clones do have a bit of difference between them in this respect. The seed plants in my experience need larger pots than the clone plants, especially during the first few weeks of growth.

If we are going to raise a few beauties outside then we are going to need relatively good quality soil that has been enriched with the essential feedstuffs. A cheap and effective method of achieving this is to get your hands on a bag of premix. You can get a five kilo bag of this for about 7.50 euros a bag, and you can get 100 litres of cheap soil from a garden centre and turn this into decent soil by adding and mixing powdered nutrients to it. It is not recommended that you immediately stick your seed plants in this mix and start raising them, because high concentrations of nitrogen can cause more male plants to develop (seed plants use the first few weeks to decide whether they are male or female). High nitrogen concentrations would possibly result in males making up the majority of your seed plants, when of course we would much prefer a majority of females. You do not get this problem with cloned plants, since they are already female because they were snipped off the side branch of a female plant. A seed plant has not yet made its choice of gender and is influenced by its environment. So keep this in mind and use only lightly-fertilized soils in their first few weeks when growing plants from seed.

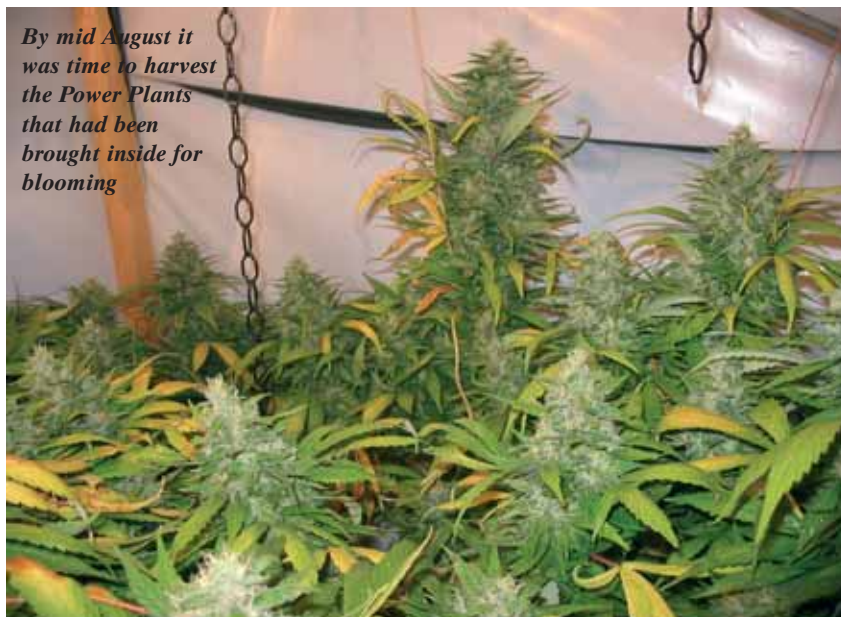
The seed plants have in my experience a need for larger pots than clone plants, especially during the first few weeks of growth.

Power Plant

In any case the Power Plants were topped when they had reached 30 cms in height, so that they would grow more compactly and wider, rather than increasing in height. This was done to prevent the plants from becoming colossal and during their bloom period outgrowing the growing space. The headroom is limited after all, and it is more productive to encourage the plants to expand outwards, than upwards. The strength of light from a sodium lamp will only penetrate to a certain depth of the leaf cover. Lower lying buds develop less well the further removed they are from the lamp light. Gigantic tall plants are therefore not making the optimum use of this light.

Around mid June, the Power Plants had had enough growth with one and half months and had achieved a good enough size to be moved into the bloom space. You can also decide to take your chances with the weather and leave them where they are, but if you would rather make

By mid August it was time to harvest the Power Plants that had been brought inside for blooming



The stems of the plants raised in the open air can hold a massive weight of bud on them



The result could well be rock hard super buds

absolutely sure then just put some of the plants (those you see as having the best potential) in your built space. In this way you will not end up with a sudden disaster if the weather does turn bad on you – because after months of patient waiting, that is guaranteed to bum your whole summer. Now at least you have a definite smoke at the end of things while you wait for the remaining outdoor plants to do their blossoming.

The frequently raised ugly head of spint, that flourish during the hot summer months because they can multiple so incredibly quick in climates with warm, dry air, did not come and pay us a visit.

What can also be a big shame is when the sun during the early Autumn does not shine quite as strongly as you had hoped, because then your enormous plants will never realise their full potential when they come to blossom. Buds such as those produced by Spanish growers, they will remain something you can only dream of, which is a shame. That is why this is an extra prompt to move some of your plants raised outdoors indoors to bloom sometime; just to experience the rich, heavy blooms that are possible.

There was just a single whopper placed in my grow space, simply because the second one would not fit in. Given that the indoor space was outside, there were no problems (e.g. with pests) encountered by moving the outdoor-raised Power Plant in to the space, because the natural enemies of the pests also had free access to the plant. The frequently-raised ugly head of spint, that flourishes during the hot summer months because they can multiple so incredibly quick in climates with warm, dry air, did not come and pay us a visit. Thanks to good ventilation there was constant fresh CO2-rich outside air passing through the space. Cannabis plants have no trouble at all with the heat so long as there is enough CO2 around. Insufficient ventilation or inadequate introduction of CO2-rich air is therefore one of the chief things you have to keep an eye on during the summer months.

Harvest time

By mid August it was time to harvest the Power Plants that had been brought inside for blooming. It was a wrench to take the scissors to such a strapping lady. It seemed like it would never end. The strong, woody stems (strengthened by the outdoor winds) can definitely support heavier buds than the smaller ones on indoor plants. And this is something that makes the plant a pleasure to trim - and to be seeing one rock hard super bud after another, trimmed nice and short and laying side by side. Because the autumn months also have reasonable weather, with a bit of sun here and there, the buds of the purely outdoor plant also reached a pretty decent size.

What the farmer don't know, he won't grow By Bart B

Variety is the spice of life!

In order to get yourself a super harvest you have got to start with top genetics, and since the origin of a clone can be pretty obscure, we are more or less forced to go back to the root of all plants. After all, it all begins with that single seed. Whether you're a weed lover who grows simply to secure his own supply or a commercial grower, remember: variety is the spice of life!. Since many clone producers do not take the trouble to be selective in their work or to bring new varieties to their fellow growers, you should not feel obliged to just sit around passively waiting for something new to turn up, but rather you should consider setting to work yourself. In principle there is nothing to be held against the good old varieties, but as time goes by you can easily end up getting a bit tired of the same old faces. It can get to the point where you think there are only a very few varieties of cannabis in existence, while in fact there are hundreds of them, and it is about time that the range on offer to the growing public was expanded. In any case, in this article you can enjoy hearing about some varieties that are very much worth the effort of introducing to your weed garden.

Because every seed is unique and therefore every plant grown from a seed will be different, we are going to have to be selective. One variety is more uniform than another, from which one can assume that there will be fewer big differences between the individual seed plants. This is why it is recommended that you take a clone from every seed plant you raise before it comes in to bloom. You might just find yourself so flabbergasted at the exceptional qualities of a particular plant that you immediately want to grow it again and again. By giving the clones you take clear labels, so that can be sure of knowing from which plant they came, you can retrospectively use them as a mother plant.

The best period in which to set to work with seeds is when Spring arrives. The reason for this is that that from then until about mid-August there is a long, natural growing period outdoors, thanks to which we can have the clones of our super plants raised for free and use them as mother plants. We can now quietly raise our clones, secure in the knowledge that when our garden is empty after the harvest, you have a load of top quality clones from your selected plant that you can let bloom. Growing from seed is hugely educational, pleasurable and full of surprises. You learn to spot the mutual differences between the many plants much better. Oh, and don't forget to share your good fortune with a fellow grower when you do eventually come across that special plant...!

New York City Diesel - Soma Seeds

NYC Diesel is a variety that is dominated by sativa and was created from cross between Mexican sativa and Afghani. The Diesel possesses an enormous growing power and develops thanks to this at a very rapid pace during the growth period, during which she also gives off a very pleasant odour. After germination you can reckon on a high number of female plants; the majority of its growers get around 80% female plants. Diesel blooms for a period of 10-11 weeks, because all good things need some time to mature. The buds that Diesel produces are enormous and it is advisable that you provide some sort of support to the branches so that they do not break under their weight. Diesel gives off a special, not exactly pleasant and very strong odour during its bloom. On the other hand the quality of the end product is first class – just one of the strong points of this variety. Dried Diesel smells divine and the taste when it is being smoked is really unique. The buds are fully laden with crystals and look fantastic. The high is intense, strong and Diesel has become one of the great favourites of many smokers. It is also a source for making outstanding hash out of.



The Hog - T.H. Seeds

For lovers of indica varieties with a marvellous yield and from which you can get heavily stoned, the Hog is strongly recommended. The legendary Hogsbreath is a phenotype (the sum of the outwardly expressed characteristics of a plant) derived from Hog which originated in Tennessee, USA. It is a Hindukush x Afghani cross and was the winner of the High Times Cannabis Cup for best indica in 2002. Hog has an enormous yield and is extremely well suited to commercial growers who want to combine a large

You might just find yourself so flabbergasted at the exceptional qualities of a particular plant that you immediately want to grow it again and again.

number of plants with as short a growth period as possible. The bloom period lies between 55-60 days. Furthermore, The Hog is one of the best-yielding indicas on the market, plus we have not yet mentioned the potency of this variety. This surpasses that of many other varieties, is ideal for ending off the day with, and rather less suitable for starting the day with. A heavily narcotic high. Its only major drawback is that there is still quite a bit of variation between individual plants. Since every seed that you plant is unique, you will be faced with a wide variety of plants; the one being somewhat more leaning to the indica whilst the other shows more sativa traits. It is important that you select the Hogsbreath phenotype that really is a beauty, and it will be well worth the effort in seeking her out. The other phenotypes are less worth it in comparison. In any case, this is a top variety that absolutely deserves a place in anyone's grow space.



Bubblegum - T.H. Seeds

Bubblegum is a predominantly indica variety and one of the sweeter, fruitier types of weed. Bubblegum has American roots and was brought once upon a time to Amsterdam. Bubblegum is a very uniform variety, which means that there is little variation among the individual plants. All plants will therefore to a large extent reach very similar sizes and give similar yields. Bubblegum grows in a 'Christmas tree' shape; short and with sturdy stems, and it produces rock hard buds - even when it has had restricted light. So even the lower-situated side branches develop strong, hard buds. Also regarding yield she's no slouch, and makes enormous, elongated buds. And she shines like a pearl with her rich covering of crystal white. You can count on lots of flowers and little leafage with this lady. Bubblegum is well known for her specific odour that smells of white chewing gum, and this odour changes towards the end of her bloom, becoming even sweeter. Bubblegum's potency is fairly high and as a variety she definitely has great commercial potential. So if you're sold on the idea of a marvellous weed with a unique, sweet taste then you cannot go far wrong with Bubblegum.

Mothers Finest - Sensi Seeds

Mothers Finest is an indica-sativa cross and won the High Times Cannabis Cup for best sativa in 2002. It is a cross



between Haze, Jack Herer and a secret variety that is a relative of Juicy Fruit. Mothers Finest is one of the best Haze hybrids on today's cannabis market. When compared, Mothers Finest surpasses many other super varieties such as Super Silverhaze thanks to her fantastic, super-divine sativa high that manages to just keep taking you higher and higher. With the creation of Mothers Finest it was the idea to get a cross that combined the Haze high and taste with at the same time a shorter bloom period, a mission that can definitely be called a success. When you raise some Mothers Finest you will come across three different phenotypes. The Indica pheno that needs a bloom time of 50 days, the Jack Herer pheno that takes around 56-65 days to bloom, and the Haze pheno that demands a whopping 70 days. So the bloom time lies between 50-70 days, which is certainly not bad for a Haze hybrid. So your best bet is to find a mother plant that is ready for harvest at around the Day 60 time period; with that, Mothers Finest is a firm recommendation for all Haze-lovers who will be rewarded for their choice with a shorter bloom time. Equally in the realms of taste, potency, yield and appearance of the dried buds, this is a variety that score highly. As a commercial grower you are on a sure-fire hit with this baby.



Bogglegum - Bog Seeds

Bogglegum is an indica-sativa cross that leans strongly to the indica side. A powerful bloomer that needs around 50-55 days to yield up her tasty Grape Bubblegum buds. This variety is strongly

recommended for beginners since it is almost indestructible and needs very little intervention in order to grow and bloom successfully. The odour she gives off is fruity but causes very little stench nuisance and does not give off any overwhelming smell during bloom. And in terms of yield, Bogglegum is certainly no slacker, and as you might expect from an indica, produces loads of hard, crystal-packed buds. Bogglegum is pretty damn potent; in fact it's one to keep your eye on if you're trying a lung or two full for the first time. It has a real creeper stone; the first couple of tokes you don't really notice anything, and then it hits you...The stonedness just keeps getting stronger and stronger...



Warlock - Magus Genetics

Warlock is a primarily indica variety that finishes blooming in 55-60 days and is especially loved for the pleasant aroma the plants give off both in bloom and when dried. Warlock also has some sativa characteristics, such as stem elongation during bloom, the active high and production of many buds with little leafage. Warlock grows with many branches and internodes, and the side branches are strong, thanks to which Warlock can carry nice heavy buds. The taste of Warlock is very fruity (think mango-apricot-peach).

Manatuska Tundra (aka M. Thunder) – Sagarmatha Seeds

Manatuska Tundra gets her name from a legendary cannabis from the Manatuska



Valley, located somewhere in the vastness of Alaska, and is an indica variety. The Manatuska is a real all-round variety that scores well on all the characteristics you look for in a good cannabis. During her growth phase she gives off a skunky aroma, while during her bloom this switches in to a more flowery-fruity smell. The Manatuska grows like no other, and continues to grow once she is put in to bloom, so she's definitely one for growers who have a good headroom at their disposal.



AK-47 - Serious Seeds

AK-47 is a top variety that has already won many cannabis cup prizes. She is mostly sativa, but then with a short bloom time of between 55-70 days, depending on exactly which phenotype you have in your garden. The indica pheno blooms fully in 55-60 days, while the sativa pheno takes 67-70 days. AK-47 is a medium-sized plant that grows with strong branching with very powerful side branches. It is recommendable to prune the very longest branches. Despite her sativa influence she still has the shape of an indica, but then

Growing from seed is hugely educational, pleasurable and full of surprises. You learn to spot the mutual differences between the many plants much better.

with thin sativa leaves. The buds of the AK-47 produce one of the loveliest smells you will ever experience, and they smell just as strongly on the plant as when they are dried. AK-47 is, proportion-wise, very uniform, thanks to which all plants raised will have roughly the same properties, so with no enormous differences either. AK-47 is a potent weed that comes on hard and can be quite strong for inexperienced smokers. It is extremely fruity in taste. Just a few tokes are enough to bring about a pleasant, social high, but keep puffing away and you will very quickly disappear into your own thoughts...



Grapefruit - Female Seeds

Fans of female plants can get straight down to business with Grapefruit. Grapefruit is made up of sativa genetics for around 90% and is a cross of 75% C99 and 25% from a strong, fruity sativa. C99 is a top plant that this brings a lot of promise to this cross. The taste and effect of Grapefruit really have to be experienced, and it offers a great alternative to the hardy perennial varieties. And of course it should also be mentioned that exceptional yields can be had from Grapefruit and despite her strong sativa influence she blooms in just eight weeks.

Photos by Soma Seeds, DJS & Nas, BBQ, Bog, Kryponite, Feng Shui a.o.



Growing FOR DUMMIES[®] Part 1

Soft Secrets begins a new series, aimed at beginner level growers with absolutely no previous experience. As you start out, we'll be there with a step by step to explain not just the terms and sayings of the growing world, but to lend a hand as you strive towards constructing a simple growing space in your home. A series 'for Dummies' then, who after they have read all of it and have successfully trimmed their first harvest, will be able to call themselves Soft Secrets-certified growers!

By Bart B.

So you want to grow at home, but don't know where you should begin? Begin by reading! If you're starting out for the first time you are already way down the path by having discovered Soft Secrets, even if at the moment you don't quite 'get' everything that's being talked about here – especially some of the technical terms that are used. As with all other forms of business you have first to get yourself a theoretical foundation.

So go find yourself some books on indoor growing, check out all the cannabis media, videos and talk to other growers in the many cannabis forums available on the Net. The Net forums especially are a perfect place to get your knowledge up to scratch. You'll find all levels of grower willing to share their experience, from rookies to pros and commercial growers. They'll do this with pleasure, and answer your questions really fast. This is the great advantage of a forum over reading a book, which can often leave you with unanswered questions. These can be asked straight away online, and this speeds up the whole learning process.

But you do still need to have read a basic book on the indoor growing process. This will answer 80% of your questions about growing your own cannabis in this way. You must read this book as much as possible, at least three times all the way from back to front and front to back. Everything you don't understand you can keep in mind and then ask in a forum. You can also come here for additional information. After several months cruising the forum, looking at lovely pictures of buds, reading others' experiences of growing, and answering that remaining 20% of your many questions, you'll be qualified to call yourself – in theory – a fully fledged grower. But as you all well know, putting theory into practice is rarely as smooth as you anticipate.

Earth

The next step is to gather your growing things. What do we all need if we're going to grow cannabis? Pots to put soil in, which should not pose any major problems. By soil I mean an earth mix, of course, and in this you have a huge range to choose from. Cheap bags of earth as sold in many gardening centres will work, but can pose many problems for the beginner. The earth contains little nutrient and is not airy enough. Well aerated soil is important for good development of the roots of our cannabis plant. By ensuring you have a well aerated soil the plant will grow more vigorously, be stronger, more healthy – just better all round. You can achieve this by adding small, white, light stones called perlite to your earth, which make it airier.

But why make things hard for yourself when they can be easy? Thanks to the many grow shops in the UK you can simply buy earth that was designed for growing cannabis in from the outset. These high-quality soil mixes contain enough of the right nutrients for the whole grow cycle once you have done a two week pre-grow. The soil is airy too, since many have perlite mixed in. It will cost you a bit more but the added value these soils offer makes them worthwhile. Earth is very important. Your plant sinks its roots into it after all, so why skimp on it? If you want to save money, do that everywhere else but on your soil. Better you buy cheaper seeds than to try and raise plants from expensive seeds sown in cheap soil. One more disadvantage of using cheap soil is that it soon gets hard and dries out. If you really, absolutely do not have room in your budget to get the good stuff, then it's best you buy cutting compost. This is the best quality of the cheaper soil mixes and at once the most expensive too.

Above all do not buy compost used for raising flowers or suchlike. These composts are made for growing specific sorts of flowers and plants and are usually more acidic because that is how these plants like it. Our cannabis plants, however, really do not like this. Now it has to be said that cannabis plants will pretty much grow on anything; after all it is and remains a weed. But try and indulge the plant as much as possible and she will indulge you in return come harvest time with a large yield. So make your way over to the local grow shop if you can. The biggest advantage of using good quality earth such as that from Plagron is that you have nothing or very little to do. So you do not need to add extra nutrients, for example.

Seed

We have filled out pots with earth, so what do we need now? Well obviously, raising marihuana without the cannabis plants themselves can be a little difficult. The easiest way to get hold of some is from seeds. These can be sold in most countries and you can order them without any problems. Where can you order cannabis seeds, I hear you ask?

For a start we can go back to the Net. Many sites offer cannabis seeds but not all of them are, shall we say, sincere. Buy a few from several well-known seed merchants is my advice. My personal favourite is Gypsy Nirvana in the UK, which you can visit physically or order from the Net at www.seedsdirect.to. You will find a large selection of seeds from nearly all the seed breeders from around the world for good prices. Above all the



Exhaust + filter



Maxlight Lamp

speed with which orders are processed is outstanding, not to mention that their delivery is secure and safe. I can hear the next question on your lips: what sort should I raise? And why are some seeds so expensive and others cheap? The simplest way to explain this is that it is similar to the difference between branded clothes and unbranded. Branded clothing costs much more but is not necessarily better. The major part of the price you pay is going on the brand itself, and the same goes in the seed world, where the well-known names command the highest prices. It also has to do with the image; 'expensive' is associated with being 'better'. One company sells its seeds for more expensive prices but sells

fewer than the seed company which sells its wares for cheaper prices. Also, the amount of work put into a seed's development, and that of new varieties (basically, R&D), adds to the price. Through many years' experience the quality of the seed is kept high, as with big companies such as Sensi Seeds, and the asking price is high as a consequence.

But the eventual price depends on many, many factors and my own experience is that price is not necessarily an indicator of quality. You can have good and bad experiences with expensive and cheap seeds. Even seeds picked out of your weed can be raised into decent plants. But we still haven't got our seed, so which

will we plump for? There is way too much choice, I must say. Each variety has its own qualities and foibles in growing. So the good news is you can't really make a wrong choice. So don't work yourself up into a lather choosing. But to make it easier for you: go for an Indica variety. Why an Indica? You have two basic sorts of cannabis plant: Indicas and Sativas. Indicas don't grow too large and have a short bloom period, with strong, broad stems and wide leaves.

The Sativas are the opposite, with a strong growth leading to large plants with thin leaves, and especially during flowering, are much bigger than the Indicas. You also have hybrids of the two that are primarily Indica with a little Sativa, or they can be mostly Sativa with a dash of Indica in them. Both sorts are outstanding but for a beginner there is a greater chance of success with an Indica. Sativas can be unpredictable and during flowering can triple in size. Indica varieties will double their size at most during flowering, which is way less (especially when space is limited). Indicas are therefore easier to deal with and do not hold as many surprises in store, as well as having greater resistance to stress (with less for the grower in turn).

Definitely for the grower with just a few plants in a cupboard I recommend the Indicas. Now I don't want to give the impression that a Sativa is hard to raise, but if you want to maximise your chances of a successful harvest you have got to go for an Indica. You will notice that there are a lot of these to choose from. Everyone has a personal opinion as to what variety you should go for, so choose for yourself, as it is ultimately down to personal preference. So finally, after much um-ing and ah-ing, you've made a choice. Nice one!

Light

Our plants will not grow without light and so we have to get a grow-bloom lamp (a lamp that can be used for both stages of the bud-raising process). The lamp will determine your eventual harvest: the more light, the more weight. So more light means more weed and a larger yield. Even with a light bulb you can grow cannabis, but you're better off growing with what are known in the trade as 'TL-lamps' – you probably know them as fluorescent lights. In order to get a reasonable yield of very good quality, then a 400w-600w sodium lamp is needed. These lamps are of average strength as there are also 1000w and 2000w types, as well as 150w and 250w.

The 400w-600w lamp is perfect for us as it uses relatively little energy for the amount of cannabis it can produce. It is certainly in a different league than just switching on a regular light bulb. There are many types of light and don't let yourself get fobbed-off with anything other than a sodium light. Take the cheapest and simplest design to begin with. Air-cooled or water-cooled varieties can better be left for trying on future crops. A 400w bulb can deliver 200 grams of bud and a 600w one up to 300 grams. This is an estimated yield you might hope for as a beginner. If you get more, then count yourself lucky. If you're good, usually after a several crops, then you

might hope for 300 grams from a 400w and 400 grams from a 600w light. Both these power lamps can illuminate one square meter very well and give off a reasonable amount of heat. Bear this in mind.

Via this insight we arrive at our next purchase: a suction pump with an active carbon filter. Cannabis plants need carbon dioxide (CO₂) in order to grow, which they take out of the air around them. If you do not allow fresh supplies of air to the room they are growing in, then sooner or later they are going to use it all up. Once that happens the plant growth is retarded and it will be less healthy. To prevent this happening we make sure that fresh air enters the grow room by putting in an air extractor. This sucks the CO₂-depleted air and expels it outside, causing fresh, CO₂-laden air to automatically flow into the space. In other words, you do not necessarily need a pump to blow fresh air back into your grow space. You can if you wish, but it is not essential.

The added advantage of having an air extractor is that we can also remove the typical smell of the cannabis plants during blooming, and to make sure that this does not attract attention outside we use a carbon filter on the extractor to remove the smell. Every extractor has a carbon filter that fits it precisely. A carbon filter is a great big tube filled with carbon. So-called active carbon has the quality of absorbing the chemicals that cause odours and neutralising them. That a carbon filter will not last an age should be obvious. Once full, they allow the odours to roam free once more. A carbon filter generally does about five harvests, so lasts about a year before needing replacement.

A good extractor with decent carbon filters is something you really cannot afford to be without if you want to grow cannabis. It will be one of the more expensive purchases if you're just starting out, but just try without one and see what kind of problems you get. If you survive being found out by the smell from your plantation, your yield from the plants will still remain low thanks to the low CO₂ in the air. To ensure the fresh air that is sucked in is evenly dispersed through your growing space we will also need one or more ventilators to provide good air circulation. By keeping the air in circulation and constantly mixing with itself, the ventilator ensures that temperature and air moisture as well as CO₂ are evenly spread throughout the space. Without a ventilator, one side of your space may be 25 degrees, and the other side 20 degrees. The heat that comes from the lamps, thanks to the ventilator, is spread throughout the space creating an even temperature. An additional benefit of a ventilator that's left to blow across your plants is that they will develop thicker and stronger stems, which will in turn produce a better crop later on.

Nutrition

That our plants do not grow themselves is a fact, which means we also have to give them food. Liquid organic nutrient gets my seal approval just as Plagron did. As I said earlier, a good soil will have enough nutrients in it to last the whole grow. Only in the last weeks is it an idea to give some supplemental feeding, and we do this with liquid foodstuffs.



General crecimiento



Leganes



Small grow operation



A ventilator is a definite must to keep the air circulating

For growing indoors we only need bloom feed. Because even the cheapest soil has enough nutrient in it to complete the growth stage, as long as we do not spend too long on the pre-grow. Every plant food is different, but all are based on nitrogen, phosphorous and potash (potassium). Nitrogen and potash are the most useful for growth, and a phosphorous and potash mix is the most useful during blooming. A good bloom feed therefore contains plenty of phosphorus and potash, and a small amount of nitrogen.

Once again, choose the special cannabis feeds since every plant food is different and it is best in the beginning to stick to using only one feed supplement. By working straight away with cannabis plant food you will get a better feel for plant nutrition - and better future crops - than by starting out with domestic plant food or suchlike, and then switching to cannabis plant food later. So now we have covered the most important issues: good soil, light, seed, ventilation and air circulation. This is all we need, or all that we have to worry about, to grow good cannabis. It is not so



Essential: food for the plants

much and not very hard. The only drawback is the capital outlay for your equipment – an investment of about 500 euros. Not so expensive, but not exactly cheap either. The lamp in particular and the vacuum extractor account for the main part of it. **Still want to grow your own cannabis? Stay tuned.**

To be continued

This series is made in co-operation with Plagron, visit them at www.plagron.nl

Growing for Dummies Part 2

Readers who have already got their hands on the previous issue may already have read what I consider to be the essentials you need to begin growing cannabis. The first step towards setting to work growing is therefore getting your hands on these essentials. Take your time in looking around, compare prices at various shops on a range of products, composts, seeds, lamps, and suchlike, before slapping down your wad. Each in its own time, and make the right choice for yourself. A respectable grow shop will not try and shove endless potions and gizmos on you if it's your first growing experience, so make sure you advise them of your position. In this issue we will be looking a little deeper into general terms used in growing with some explanation of words and phrases from the growing world.

By Bart B.

Growing and Blooming

The growth of a cannabis plant depends on the number of hours of light it gets each day. The more hours light, the stronger the plant will grow. The most-used light period in cannabis growing is 18 hours light per day and 6 hours night. This corresponds to the 21st June, the longest day of the year, and a sunny one at that. We kid the plant that it is the always the most lovely and longest day of the year.

But you can just as well give your plants 19 hours, 20 hours - right up to 24 hours light per day. With a 24-hour light period your lamps are burning continuously, of course. But if you give the plants less than 18 hours light you increase the chance that the plant will start to bloom. Some varieties bloom when given 15-16 hours light.

Whenever we talk about "putting the plant into bloom" we are referring to the practice of putting the lamps on a timer set for 12 hours light and 12 hours night. This is the optimal period for blooming. If you give her more hours dark, then the plant will come in to bloom more quickly, but the yield will be less, because you have convinced her that winter is just around the corner. This is sometimes worth doing at the end of your bloom period to tip the plants into a 'harvest-ready' state a little earlier.

Why just 12 hours? Because the plant needs light in order to develop its buds and make its THC. The more light, the more bud growth and THC production. The perfect boundary therefore is 12 hours, so that the plant can bloom well, while developing a good, THC-rich bud with a decent yield as it does so.

Now I can hear you thinking: 'then I'll just give the plant even more light!' But this will simply prolong the blooming period without adding anything to the size or potency of your crop. The length of the blooming period is dependent on the plant variety and can be anywhere between 5-16 weeks. The most common varieties though all bloom after 8-10 weeks.

Difference between male and female cannabis plants and hermaphrodites

The female cannabis plant is very easy to

recognise from her production of little white hairs. The first white hairs are found in the 'armpits' of the plant, where two of them spring from one pistil. The pistil is the place on the plant where the leaf is attached to the main stem and from where a side branch sprouts.

The male plant, by contrast, makes no white hairs and is therefore easy to tell from the female plant. The male plant has little balls that always appear in groups that hang off the plant by a thread. When these balls pop open after a lengthy period of blooming, then banana-shaped pieces become visible. Out of these comes pollen that can fertilise your female plants.

At the very beginning of blooming, the male balls and the female pistils look similar because they are only a millimetre or so big, but by looking carefully you will be able to see that a male ball grows away from the main stem, hangs on a thread and multiplies itself to form several balls. A female pistil stays firmly close to the main stem until, at a particular moment once it is large enough, the two white hairs emerge. So if you see in one pistil two balls growing then the chance is already large that you are looking at a male specimen.

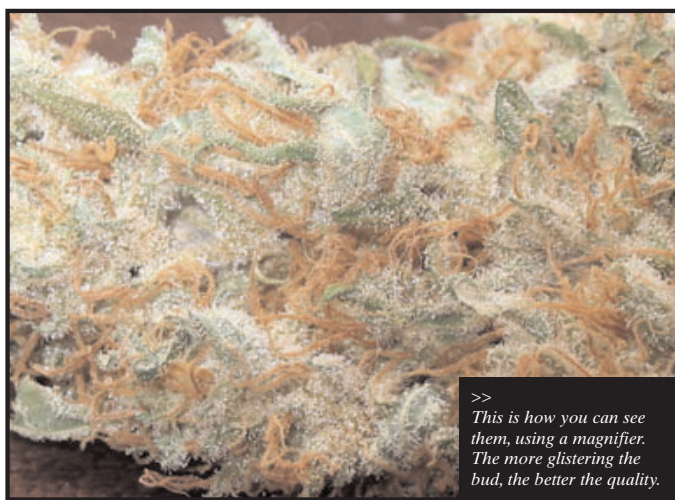
In this way you can determine at quite an early stage of blooming which are the males and remove them to leave more room and resources for the females to develop. Hermaphrodites are double-sexed plants, having both male and female characteristics. Within this sort we have various types. Some hermaphrodites are 90% male and 10% female, others are 90% female and 10% male, or 50% male-female. In the case of those that are 90% female hermaphrodites, we can still simply remove the male flowers and in this way still develop harvestable, unfertilised - and therefore seedless - buds. The pollen these hermaphrodites produce will for the most part produce female seeds.

How are buds created and what are the smokeable parts of the plant?

In order to understand how a bud is produced on the plant, from flower to smokeable product, you really need to see it with your own eyes. A mere description of how a female plant manufactures a bud will make many people none the wiser. As you can see, the female plant produces many little white hairs that emerge from a



<<
Here you can see clearly the THC crystals on a bud. Pressed THC crystals are the ingredient for hashish.



>>
This is how you can see them, using a magnifier. The more glistening the bud, the better the quality.

tiny budlet, and the more advanced the blooming proceeds the more these buds will swell up and become bigger.

In many cases the buds will eventually grow into each other, making it look as if there is just one enormous bud. Eventually the buds will stop growing in size - at the end of the blooming process - and these white hairs will take on a colour. When this has happened for 80% of the plant's buds then it is time to harvest the plant.

The only bits of the cannabis plant that are smokeable are the buds. The cultivated buds are dried out in a dark, cool (15-20 degrees Celsius) space where they can quietly and slowly undergo the drying process, and at the same time the 'conversion' process that produces the substances that give a 'high'. There is little point in fast-drying your buds, since the real high you get from smoking cannabis needs some time to mature during the drying process. The leafage trimmed off from around the bud is smokeable, but does not taste as nice as the buds themselves. You're better off making hashish out of this, but there'll be more about this in future editions

Difference between hash and weed

As you should know by now, weed is the dried buds of the female cannabis plant. Only the females can produce potent

weed. Hashish on the other hand is the collected crystals that are found on the buds, leaves and stem of the plant. Since a photo says more than a thousand difficult words, you can probably better see for yourself how many crystals there are to be found on a bud of cannabis. The transparent little balls you see under magnification are the crystals I mean, and you can find them on small stalks.

When the cannabis plant is ripe these crystals take on an amber-to-gold coloration. By drying out the buds and leaves of the plant the crystals easily come loose from the vegetation, especially once we stick this leafage in a pollinator. This is a square box with a drum inside it - like a washing machine, only with a round sieve. The drum turns round and the crystals are shaken loose as a result of the churning. They fall through the sieve whereupon we can scrape them together into one pile, which we call skuff, or unpressed hashish. We can press this hash powder into a lovely block, as you may have seen for sale.

Hashish is thus the collection of the THC crystals that are found on the cannabis plant and that are not visible to the naked eye. It is a pure concentration and therefore gives a more energetic, clearer high. If you roll a joint with a bud you will notice that your fingers become covered with a gold-coloured powder from breaking open the bud and crumbling it - this powder is the crystals I've been talking about.

Indoor or outdoor growing?

There's a huge amount to be said on this topic and it should be stated that both have their qualities. Outdoors, you can squeeze three harvests in between spring and winter. Except that you are dependent on the weather gods, and so there are very few certainties to rely on when growing outdoors. A lot can go wrong, and after months of slog you can be left with a few measly buds to harvest. Most unwelcome.

The advantage of growing outdoors is that it costs you next to nothing. You just need a good patch of soil or a nice big pot in which to put a seed or clone, which will grow into a female tree that will give you several hundred grams of bud. Weather permitting...

A clone is a sliced-off piece of branch that has been stimulated to produce roots. Outdoor growing is a great way for the beginner to get to know the cannabis plant and her feeding wishes. The growing period outside begins in early April and goes on 'til mid-August, so if you screw up a plant you can simply germinate another one.

By starting with growing outdoors you will build up a wealth of knowledge that will serve you later if and when you start to grow indoors. The great outdoors is in short the ideal grow room for beginners, who will be enjoy the many surprises they will encounter as they help their plants to thrive. Especially if you plant your babies in solid earth, when you will have little else to except sit around on your lazy butt and wait for them to ripen for harvest

With indoor growing, **you** are Mother Nature herself and you must therefore take control of all aspects of growth, from ensuring air throughput and ventilation, air moisture levels, and so on.

Growing indoors is a little safer than growing outdoors, given that the plants are safely hidden away inside. Curious neighbours can easily spot your plants growing outdoors and cause some major hassle.

Indoors, you can get up to four, five or even six harvests per year, realised dependent on the length of the growing period of the particular variety you're growing. You are not confined by the seasons and can therefore choose yourself when you want to start a crop. You have complete freedom with indoor growing. You can grow any variety at any time.

On the other hand, you have to pay much more attention to your plants with indoor growing. It is a bit more work – though pleasant work of course. Also you need to make a starting investment in order to acquire all the essentials. You have to check your plantation every day and give feed water whenever the plants need it. If you choose to grow indoors you are also choosing to spend a portion of your free time on the activity. If you think you can just bung some plants in just like that and when you feel like it pop your head round the corner and take a quick shufti at them, you're going to quickly find that you're deluding yourself.

But since you can simply control most of

the climatic factors you can continuously be working towards a maximum yield of top quality weed. You can control the temperature by letting the air pumps operate at a certain level, the optimum air moisture content can be reached by installing an air humidifier, and a good air flow by putting one or more ventilators in your grow room.

Indoor as well as outdoor growing can deliver excellent quality weed in outstanding quantities. Depending on your own possibilities and desires you should make the choice that suits you best.

pH and EC

The pH-value is the number that indicates the acidity of the soil. The pH-scale runs from 1 to 14. A solution with a pH between 1 and 7 is called 'acid', a pH of 7 is known as 'neutral', and between 7 and 14 we talk of 'alkali'. The lower the pH, the more acidic the solution is. When the pH is too high or too low the plants cannot take up some of their essential foodstuffs. That will lead to deficiency sicknesses. A good pH lies between 5.6 and 6.6. With a pH in this range, the cannabis plants can best extract nutrients from the growing medium.

The pH also influences the (bacterial) soil life, and an active soil life increases the fertility of the soil, which makes for healthier, stronger plants. By measuring the feed water with a pH meter we can acidify it down to the correct value. Most tap water has a pH of around 7.0, so we have to add a little pH-acid to it to lower the pH to, say, 6.3.

We either do this for the whole grow or not at all. Once you have begun to regulate the pH you must continue to do so. Even without a pH meter you can get excellent yields, but when you want to achieve that bit extra, the right pH will ensure a better growth and bloom. The pH is more important than the EC, so if you have to choose, plump for a pH meter first. The pH of soil lies around 6.3 because the bacterial life can fully develop, and be advised that the pH of coconut fibre is around 6.0.

EC is the measure of conductivity of a solution. The conductivity increases the more salts are present in a solution. Fertilisers are nothing more than salts. The more fertiliser you add to your water, the higher the EC it will read. EC is therefore a measure of the total concentration of fertilisers in the water that is given to the plant.

Through the entire growing process, the EC lies between 1.2 and 2.8. One begins with a low concentration of feedstuffs around 1.2 – and this is raised during the growing period to a maximum of 2.8. If you should venture into higher concentrations, then the chances of burning the roots from too high a dose is large. So just stick your EC meter in your water vat, add nutrients until the desired EC reading, and Bob's your uncle.

In the next edition we'll be looking at the pro's and cons of organic versus hydroponic growing, and making clones on demand. This is a little bit earlier than I

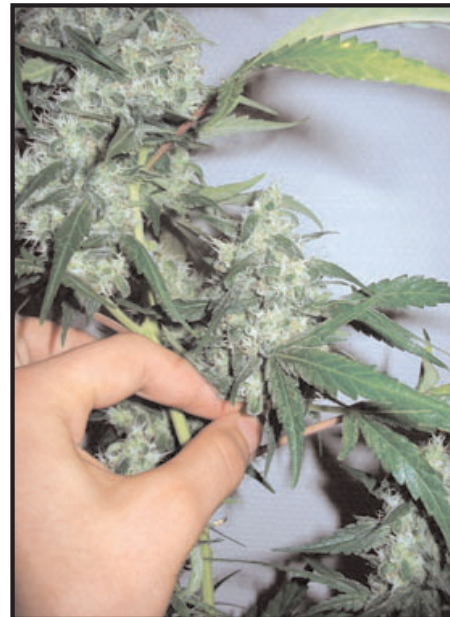
had planned, just to give you dummies a good chance to practice.

Any related questions?
Contact me at Barth@reef.net

And remember:
there's no such thing as a stupid question!



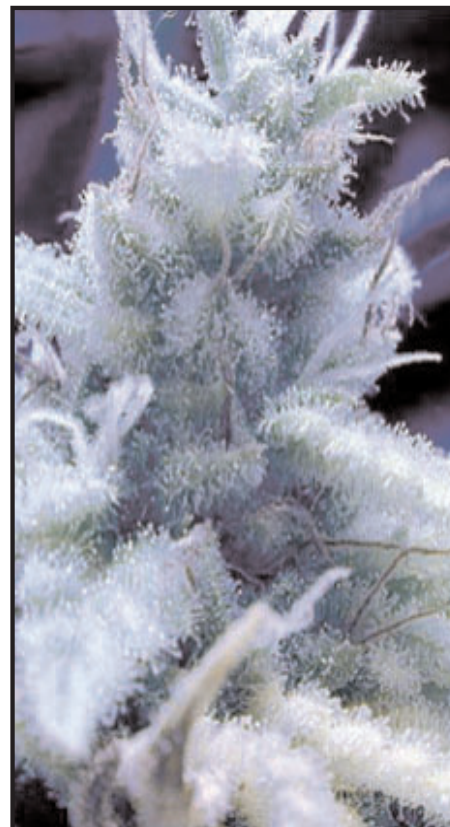
<<
Male plant



<<
The white hairs of the female plant are turning brownish. Harvest time is around the corner!



^ Female flowers



<< Some mothers do have 'm': this plant's a Crystal Galore



^
The balls of the male plant are clearly visible.

Growing for Dummies Part 3

This time around you're finally going to learn what the differences organic and hydroponically grown cannabis are, plus I'll be giving you some insight into the art of clone making.

By Bart B.

Organic or hydro?

'Bio' or organic growing is growing in soil using only natural fertilisers. Everyone knows that organically-grown produce is of high quality, but it is also healthier too. By using as much high quality organic fertilisers and soil mixes as possible you get the most pure end-product possible. Everything that you feed the plant finds its way by one route or another into the buds

By growing organically the taste of the buds is influenced - as well as the effect, which is just that little bit extra. It is also the simplest and cheapest way of growing.

Soil works as a buffer with which your mistakes in feeding are more easily forgiven. You really have to try your best to mess things up to go wrong growing in earth. Even beginners can achieve top harvests growing in nature's intended medium.

Coconut fibre (or 'coco') is an outstanding medium that is very user-friendly. You do need to use more nutrients because coco is nutrient-poor. With a good organic soil mix all you need to add during two weeks of growing and eight months blossoming is a bit of water. This is because this sort of soil is chock-a-block with food. This makes it even easier for the beginner-level grower - to the point that he does not even have to add extra nutrients and so does not run the risk of over-fertilising. In very favourable cases, the buds blossom so well that it is well worth giving them bloom feed so that the buds can become even bigger and harder.

Hydro or hydroponic growing is growing in a water medium with nutrients added to it, or with an automatic irrigation system. Thanks to the greater quantities of oxygen that are brought to the roots as a result, the plant grows at a very fast rate. *Much quicker than in soil.*

But you do have to invest more in your kit if you want to grow hydroponically: special pipes, connectors and suchlike need to be bought. Also you have to fully control the pH and EC yourself, so there is less room for mistakes than there is growing in soil. You can rapidly fix things that have gone wrong with your plants, but things can go wrong quickly enough to lose them all too.

An experienced hydro grower can achieve huge harvests. An automatic irrigation system ensures that at pre-set times the plants receive feed water and everything is pumped through the system. Plants love regularity and given

it via an automatic irrigation system, they will reward you with a high yield. Such a system can also be used when growing in soil. A perfect combination of bio and hydro is also possible.

Thanks to the greater chances of success growing in soil, I advise you to start there. Once you've got some experience under your belt, by all means give hydro a whirl. There are currently so many systems on the market that you should take an efficient medium such as soil to start with and then maybe at the same time try out, on a small scale, other systems. Anyone who runs into problems during a crop can always fall back on growing in soil. I knew a hydro grower who after several power outages decided to go back to growing in soil so as to be less dependent on electrical apparatus. Think before you start!

Clones or seeds?

Clones are genetically-identical copies of the plant from which the clone was taken. Because it is important when growing cannabis that you only have females in your garden, it is mostly female clones that are made. The clone will possess all the attributes of the plant from which it was taken - which is commonly called the 'mother' plant. A mother plant is a female plant that is kept in its 'growth' stage and from which clones are taken in order to stock your garden with identical copies of a known, good quality plant. Being identical, the clones should all be ready to harvest at the same time, grow and bloom just as strongly as each other and have very similar growing patterns and quality of bud.

A frequently asked question is whether one should start out with clones or seeds. Both have their advantages and disadvantages. Growing from seed takes a bit longer than if you grow with clones. The seeds must be germinated, which takes from a few days to a week, and some seeds will fail to germinate or only sprout once they have been planted. Thanks to this there is a chance that you will lose significant numbers of plants over the course of a growing career unless you master the art of seed germination well.

After this we have to let the seedlings grow for up to two weeks, but mostly plants from seeds are given up to a month or even more of 'pre-growing'. This long growing period makes for a significantly more expensive electricity bill because the growing stage needs more energy than the blooming period. In the blooming period we can let the lamps burn for a good part of their 12-hours a

day during the hours of night, which is a much cheaper source of power than the peak daytime rate.

Seed plants are young plants compared to clones, since if you take a clone from a six month old plant then the clone is still six months old, and a seed plant of six weeks old remains six weeks old. It is important to note here that a cannabis plant is only fully developed and able to give her maximum yield once she has

This means you have more certainty with clones because you know in advance what you can expect. What's more, clones only need a few days to a couple of weeks' growth, so the growing period can be reduced by a considerable amount, which in turn allows you to fit in more harvests a year or simply get on more quickly with the blooming and harvest.

The most important thing of all is that

The advantage of growing from seeds is that you have a fantastic range on offer from which to choose - thousands of varieties of cannabis in fact.

reached six months in age.

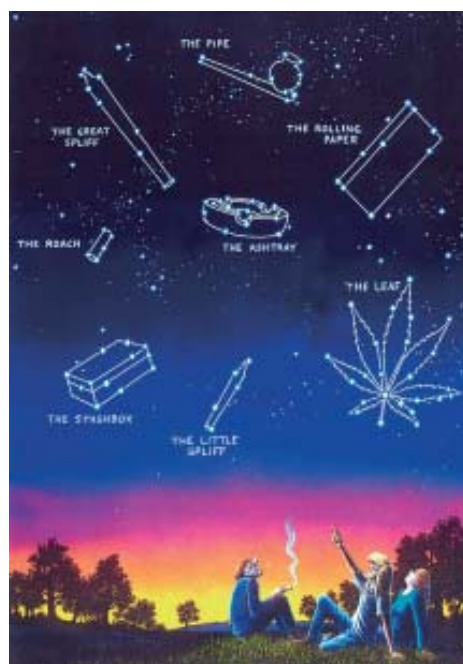
The advantage of growing from seeds is that you have a fantastic range on offer from which to choose - thousands of varieties of cannabis in fact. So you are not limited to using the same clones time and again or the same varieties. Seeds can be stored for a long time while clones require quite a bit of effort just to be kept alive. In fact, clones need to be kept in growth under a grow lamp.

Every seed is different and so each plant that is grown from seed is too, with the result that you get a range of plants if you grow from seed, even if they are of the same variety. Thus one will grow more strongly, or produce bigger buds, bloom for longer or stay short and compact. The result is you get a garden full of various quality plants. One plant might deliver really tasty buds while the other produces a huge amount of THC but does not taste as good when smoked. If you plump for diversity, then seeds are outstanding, but if you crave uniformity in your growing, then clones will be more to your liking.

It's important that you don't go cloning just any old plant too. First you've got to find a good mother plant candidate. A plant with the special combination of characteristics you personally want to see, such as taste, potency, growth pattern or blooming period. The best plant in your garden, in other words. The great advantage of clones is the uniformity with which they grow. The plants will reach about the same height, which in turn ensures that they can all make the best use of the light from the lamps you're using. Also, they will produce buds with the same taste and high.

you only get females! With seed plants you will have to identify and remove all males during the growth phase. With a bit of bad luck you can end up losing a significant number of plants in this way. This lost space could easily have been filled with productive females, and that's why when push comes to shove I give preference to clones as the best starting point.

Seed plants on the other hand do make the best mother plants, thanks to the greater range of variation among the plants giving you a better chance of coming up with at least one that matches your wishes. So you can perhaps best start off with growing as many seed plants as you can and then choosing the best from among them to proceed to bloom with. From these plants you can then choose a mother from which to clone a whole garden's worth of plants. The clone from a seed plant will also generate a bigger yield until she is six months old and reaches her limit.



How buds are produced, from start to finish (Variety: Nlx)



In the next edition we are finally going to build our first growing room so get ready for the real hard work!



This series was made in co-operation with Plagron; visit them at www.plagron.nl

Growing for Dummies Part 5

Germination

By Bart B.

Now that we have finally got our growing space ship-shape, we're ready for the real work. Last time we went through the most important issues. After much research into the various varieties of cannabis, you have finally settled on one that suits you. Your space is made fire-safe and light-proof, and now only awaits its payload of green plants.

paper it is pretty easy to make sure that the seeds receive a continuous supply of moisture. If the kitchen paper is too dry you just have to add a drop more to make it moist once again almost immediately. It is important to keep the seeds moist but not wet. When you keep the seeds wet, then the rootlet will not go off in search of more water, and so grow more slowly, since it has all the water it needs right where it is, thanks. By keeping it

because it causes a minimum of stress to the seeds and the rootlet can dive straight into the medium and begin developing. Fairly clumsy growers can damage the rootlet during its planting when they are using the kitchen paper method. The best way of planting the germinated seed is to poke a small hole with your finger. Make this wet. Quickly lay your seed into the hole. Because the soil is nice and wet it is safe to press the seed gently into the soil without any problem. Cover with a fine layer of soil and add again a very small amount of water (10 ml). So that the seed can anchor itself, don't give too heavy a slurp of water; if you do, you risk washing the seed too deep and again exposing it to the risk of rotting.

a lid, one that's also called a dome. Such a tray or dome makes sure that the air moisture content remains high – so there's no reason to add more water until the seedlings emerge. I put the tray of course in the tropically heated cupboard at the right temperature, which being controlled by the automatic heating needs little-to-nothing more doing for a successful germination. You will see within one-two days, the seeds will germinate. After four days you'll have seedlings of several centimetres in height.

Light

What's important now is to make sure the seedlings get enough light. But it is pitch dark in the cupboard, since the seedlings germinate best in a dark environment, I hear you say. Well, once they have sprung up we need to make sure they get as much light as possible so that they develop as rapidly as possible in cannabis bushes. So remove the seedlings when they get to 4-5 centimetres high from their smaller sister seedlings and plant them in your medium of choice. If you have sown them in stone wool blocks you will find this transplanting easy, and the tender root will remain protected throughout the operation. The stone wool blocks with sprouted seedlings in them can now be placed one by one into your start-up growing space.

A good start is solid gold!

We are now a few days to a week further down the line and thanks to one of the above methods, we have successfully raised a few seedlings. Do not expect a 100% germination of all seeds; they are still living things and sometimes there can well be a few seeds that are duds. Always start with the assumption that this will be so and sow a few extra than you anticipate using. If they all come out, so much the better! The small seedlings will now be trying to develop into gorgeous green ladies as fast as they can. By putting them under HPS lamp(s) they will get all the light they need, and therefore the energy with which to grow speedily. The first week it will seem as if little is happening, since the plants still have very few leaves and an undeveloped root system. With the passage of time the plants will grow more leaves and in each case start growing faster and faster. The process is comparable to an old-fashioned diesel train that slowly starts rolling but eventually hits full speed. The leaves of the plant function as solar panels and the more solar panels it has the more energy it can produce and the faster it can increase its growth rate. Such is its efficiency you can almost see a change from day to day, with visible growth. It is very important in this beginning phase to make sure there is sufficient light, warmth and moisture. By keeping the moisture level high the plants



Stone wool blocks

Don't forget that with the methods used above the temperature plays a very important role in the germination success. An ideal temperature is for it to remain constantly between 20-25 degrees. Try to find a way to keep your seeds constantly above 20 degrees then. You can do this by using a warming mat, which is a small mat that you plug into the mains and which keeps itself at a constant 20-22 degrees. This is a cheap and effective way of keeping your seeds at the right temperature. I prefer to use a warmer such as the Bionair placed in a small cupboard. This warmer can be programmed for example to stay at 25 degrees, and because we have placed it inside a cupboard it has to do a lot less work to keep your seeds at that temperature. Inside your cupboard you will create a mini-tropical climate. Another method I still use because it so effective and easy, is the stone wool block method. We put the seeds in to stone wool blocks and soak them once with water laced with root stimulator added. We now stick the wet stone wool blocks with seeds in them in a plastic tray with

Time then to whip out our packages of seeds and get to work. But how do you best set to work, to get these tiny, fragile seeds to grow without problems into small plants? That there are many different methods you already know, as you also know that everyone has their own favourite particular method. What do seeds need to germinate successfully? The three keywords are warmth, moisture and darkness. When we give moisture to the seed then the tiny root that is curled up inside the seed start growing and sets off in search of more moisture. Because this root rapidly increases in size, the case or hull of the seed soon breaks open. The first to appear is the fragile little root which may be small but has a strong ambition to grow as fast as possible into a fine cannabis tree. The growing power of a cannabis seed cannot be underestimated. Seeds have the ability to develop very rapidly; within just 12-36 hours of moisture being given to the seed the root will have popped out.

Kitchen paper method

One of the most common methods of germinating seeds is the wet kitchen paper method and its variations. In this, we lay the seeds on a damp, absorbent piece of paper or cotton wool. Thanks to the moisture absorbency of the kitchen

too dry you run the risk of killing the root. Getting it just right is difficult to achieve with this method since the kitchen paper is always either too wet or too dry. But it does work outstandingly well, though some beginners do manage to kill a few seeds in the process.

Direct in medium

A second method of germinating is to get the seed straight into growing in its intended medium, having first soaked it in water laced with root stimulator for a few hours. After this soaking, pop the seed straight into its soil, coco or whatever. We plant the seed 5-10 millimetres deep in the medium. By not planting the seed too deep it can quickly emerge into the light, and so begin to grow. Another good reason why we don't plant the seed deeper is that any deeper and it risks remaining wet for too long and the seed may start to rot. The upper surface of the medium dries out the quickest and so we need to take care to keep it moist. 'Moist' here means that we wait until the upper layer is drying out, and once this is happening, give it more water (and if using it, root stimulator). In other words, don't give the medium more water if it is still wet. If you do, you will keep the medium wet rather than moist and give your seeds a good chance of rotting. Some people choose this method

The art of growing consists mostly of the time you spend giving attention to your plants, and thus involves spending time with them.

can more easily develop leaf cover. We can raise the air moisture level by letting the air extractor pump a little slower, or even leave it off in the first weeks, or we can use an air humidifier. As the plants grow in size they use more and more water and so their need for watering becomes greater. The used water evaporates out of their leaves and straight into the grow space, so this automatically keeps the air humidity high. In contrast to growing with clones, we do not need to hang the lamps too high over the plants, as seed-grown plants can handle the intensity of light better than a freshly-cut clone of a female cannabis plant. A seed plant would receive in nature the full strength of the sun on it, and has adapted to find this just lovely. You have probably read all over the place about having to keep your lamps hanging at least 60 centimetres above your plants when they are starting out, but then they were talking about clones and not seed-grown plants.

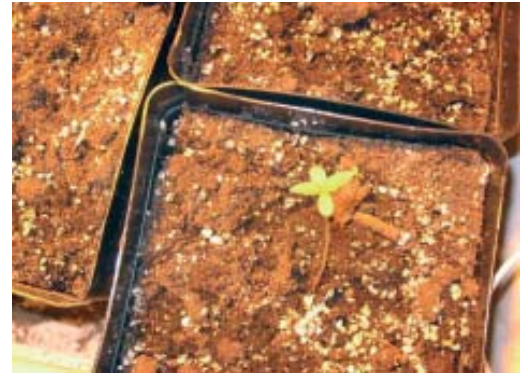
Feeding

So when do we need to start feeding them? This depends on the medium in which you are growing them. But certainly not in the first few days, whatever the medium. If you're growing in soil, this will have sufficient nutrients in it for at least two weeks. Coco by its very nature contains no nutrients and so after about a week you will need to start giving your plants food. It is very easy to see at what point your plants need food as they will ask for it themselves. After a short period the green leaves will turn a lighter shade of green, which is their way of saying that there is less nutrient left in the medium and now could they have some more please? As a beginner you will probably not notice this subtle hint, and if you wait too long then you will see the plants start to turn yellow. This really is not serious and nothing to get worked up about. The plant is making it very clear that she has a shortage of nutrients. Most probably a shortage of nitrogen, one of the most important building blocks for a good



growth development of the plant. By giving food to the plant you will see the yellowing leaves rapidly return to a healthy green. The shortage has been removed and the plant has replenished her leaves with all the necessary building materials. Depending on how serious a deficit, the return to normal can take a whole day, or just a few hours.

In order that you do not make things any harder for yourself than they need to be, it is best to start your first ever harvest in soil so that you get to know the plant better. Doing so means you do not have to start immediately feeding in the first few weeks, and you have less chance of screwing things up too quickly as a result. The grow period in which the



plant now finds itself requires that we have the lamps on for 18 hours with a six hours night sleep. This time schema matches the longest day of the year and normally the sunniest, the 21 June. We allow the plants to think that every day is the longest, sunniest day of the year.

Enjoy your plants

During the first weeks, when your plants are happily developing in their pots or tubs full of earth-mix, there's not a lot to do except enjoy the view. While in the first week you will marvel at how little progress seems to be made, from the second week on you will asking yourself how they can grow so damn quickly. The art of growing consists mostly of the time you spend giving attention to your plants, and thus involves spending time with them. Follow the development of them with care – especially the first time, you do not want to miss how that teeny-tiny little sprout so quickly transforms into a flourishing cannabis bush with the best quality dope you've ever wrapped your lungs around! Home grown Rocks!

Next time we will take a closer look into the vegging period.

It is important to keep the seeds moist but not wet. When you keep the seeds wet, then the rootlet will not go off in search of more water



This series was made in co-operation with Plagron; visit them at www.plagron.nl



AK-47
plant of the year
(High Times Magazine)



WHITE RUSSIAN
Strongest strain around



CHRONIC
Quantity and Quality



KALIMIST
Best sativa high



BUBBLE GUM
Many awards



15 handselected seeds in a tube

Only awardwinning strains!

Your guarantee for succes!

Serious Seeds: Postbus 37021 - 1030 AA Amsterdam - The Netherlands - www.seriousseeds.com

Growing for Dummies Part 4

How to build your own growing space

By Bart B.

Once the required knowledge and materials have been gathered together, we're ready to get down to the business of sorting out our growing space as optimally as possible for maintaining a favourable climate. A grow space can come in many shapes and sizes, but there are a number of essential points that must be adhered to whatever the eventual format of your space.

Light

For a start, we need to ensure that the space is made completely light-proof. In order to bloom to its peak the cannabis plant needs 12 hours of undisturbed night and 12 hours light. Disrupting the 12-hour night period leads to lower yields or even completely failed harvests. That's why you should go stand in your space if this is possible and take a look to make sure that no light is creeping in. If there is, then you can get a special light-proof tape that will blot out the holes and cracks. A grow space that is not light-proof can easily mess up your harvest because the plants will become confused. One of the most easily preventable things

left in the grow space or destined to be left in there, because these usually have tiny lamps that give off a lot of light that can disturb the night's sleep of your plants. Stick a piece of light-proof tape over any lamps and lights.

Air tight

Once our plants are well and truly in bloom and are producing gorgeous buds, the development of their smell also begins to at a pace. Our plants will begin to spread a fragrant and somewhat powerful odour, which makes it vitally important that our grow space is also made fully airtight. The grow space must have a minimum of cracks or holes in it from which the marihuana odour can escape, and preferably absolutely none. Once your plants begin to smell then you will probably be visiting your crop so regularly you will get quite used to it. In this way you can become convinced that your plants are making little to no smell, when in fact neighbours or fellow inhabitants are suffering from the stench. One other important factor in addition to the safety aspects of having an airtight space is the control of the climate. Creating a good climate is enormously

in which our plants can develop into real giants, growing and blooming at unheard of speeds. Because the climate has to be constant and even throughout your grow space we need a ventilator (or more than one) to make sure there is a good movement of air. The plants will also grow thicker and stronger in the stem and will at the end yield more than plants raised without a ventilator. If you have a good budget at your disposal then you might want to invest in a thermostat, hygrostat or a thermo-hygrostat. You can connect up the thermostat to the exhaust ventilator, which will allow you to set your desired maximum temperature - say, 28 degrees - for your space. If the temperature rises above that, then exhaust ventilator kicks in to bring it back to 28 degrees. The hygrostat can also be coupled to the exhaust ventilator to make sure that the required air moisture content is maintained. If your space becomes too humid then air is sucked out until the right level is reached. With a dimmer switch you can regulate the speed at which the ventilator operates, so you can run it continuously at a slow speed to keep fresh air pumping into your space.

moisture rise during the first weeks is easy in a small space, but try it some time in a whole room. It's just as easy in a large space but then you will need a whole load of expensive equipment and as a beginner you're better off trying to keep your set up low budget. Now you can just as well throw some decent money at getting your space well insulated; each to his own.

We also need to make sure that on one side of the space, down at the bottom, there are holes for air to enter. These holes are to let new CO₂-rich air get in. On the other side of the space, right at the top, is where we place a suction pump. This will suck up and remove the warm air. Warm air rises, which is why we place the pump at the uppermost point of the space, or at least the highest possible place. By fitting a carbon filter to the suction pump we can remove at the same time any strong odours. A carbon filter and vacuum pump go together hand in hand and are absolutely essential in a garden set up such as we are building. A filter will suffice for around five harvests, or about a year. The pump must be of appropriate capacity for the size of the



We make sure the walls are reflecting white and make a collection tray to catch any excess water. We make a wooden construction that is placed about 15-20 cm off the ground.

that can happen is the creation of male flowers on the female plants thanks to the stress they have been exposed to. In no time at all just a few male flowers can fertilise the whole female planting, with the result that you end up with buds full of seeds. A good grower always checks his plants so that he can remove any male flowers in good time. It takes a few weeks before a male flower can disperse active pollen. It also happens frequently that the plants find it difficult to come into bloom when beams of light are allowed to get in and they will as a result produce a very meagre crop. Above all watch out that any electrical appliances

important if you want to get the very best from your plants. So make sure when you are setting up your space that unwanted smells can neither get out nor drafts find their way in. A third important point is that any undesirable creatures and vermin cannot find their way in to your space. A good grow space is in effect a kind of quarantine cell in which nothing gets in or out without your say so.

Climate

Once we have the previously described points firmly sorted out then we have arrived at our eventual goal of setting up the grow space, creating an ideal climate



After having fixed black-white foil on the walls, we also attach the same black-white foil to our construction. In doing this we've made a simple collection tray. Watch out for any sharp objects that might create holes in it.

In order to regulate the air moisture content we will need an air humidifier. They are not too expensive and well worth the investment. The nice thing about them is that they usually come with a built-in hygrostat so that you only have to punch in the required air moisture and the humidifier takes care of keeping it there. Especially during the growth period this works wonders. A plant can double its rate of growth in humid air, and this will help reduce the time spent in the growing phase. Warming a large room or a small growing space will make a world of difference. Letting the air

grow space, so first you have to calculate the volume of that space. Casting your minds back to school, we know that multiplying length x width x height will give you the volume of your space. Always take a pump with a slightly larger capacity than the actual volume of your space. During the hot summer months this can make a big difference in keeping your growing space at a reasonable temperature. Consequently, choose a larger capacity - for example, for a 500 m³ space we might choose a ventilator suitable for a 750 -1000 m³ space. The great advantage of this is that during the



To get the most out of our square meter, we build a reflecting screen around it. In this way we can better control the climate and create a completely light-proof enclosure.



Once all the walls have been attached to each other I choose to create an additional collection tray in order to keep the whole thing clean and tidy and thereby lessen the chances of disease.



It is important to have entry holes for fresh air to get in. Preferably down at the bottom. The fresh air then circulates over all the plants inside. From the growth period through the blooming and beyond.

cooler winter months we can let it run gently and using little energy, the during the hot summer months we can let the throttle out and comfortably keep the temperature below 30 degrees. A large ventilator running at half speed makes a lot less noise than a smaller ventilator running flat out. Also, should you wish to increase the size of your grow space in the future then there is no need to buy a new ventilator. You can never buy a ventilator that's too large, only one that is too small. It makes little sense to keep a ventilator running flat out if it can keep the space replenished with new air at half speed just as well. By placing the air input holes at the bottom of the space and the exhaust at the top we create an air stream that will carry the new, enriched air from below, right up to the top on the other side of the space, flowing over the plants as it goes. This is great for the plants, which can enjoy the fresh air to the max before it is depleted of CO₂, sucked away and removed from the space.

In order to keep pests outside we can use a Nylon stocking or special socks placed over the air input holes so nothing can fly or creep in, which will help you avoid an infestation later. Certainly do not forget either that no light must be allowed to get in through these holes to reach the space. PVC tubes with a bend in them work well to let air in but keep light out.

There are thousands of ways of making sure there is a good air supply to your space; they're all great, but there are two main rules to bear in mind: by preference, air in at the bottom, and keep it light-proof. In a situation where you simply cannot make a hole for the pump anywhere then the best solution is to buy a cheap door and make a hole in that for air extraction. This is a frequently used method by professional growers.

Square metre

That's enough wittering on; the real work is about to start: the actual building of the grow space. You do not need much for it: just a single square meter, and everyone has that somewhere, whether in the attic, cellar or a spare room. What we need is: a staple gun for use on wood, a saw, black-white plastic, a drill, screws, scissors, a few wooden planks - and a square metre.

What we are going to build is a screen around the growing space. Let's suppose you do use a single meter of a large room, then it is handy to partition off the grow space from the rest of the room so this can be used for something else. If you don't do this then the whole room will stink later when the plants are blooming. The big advantage of building a screen is that the light from your lamp will be utilised to the full. Light is weight - that is to say, the amount of light a plant gets will to a large extent determine the eventual yield. By building a screen around the square meter that is then covered in white reflective plastic, you keep the light inside the growing space and on your plants. If you don't do this then the light will scatter itself all over the room and so you will lose a good proportion of it. Making sure that the sides around your plants are of reflective white is the cheapest way of raising your yield. It doesn't get any cheaper or easier. Mylar is the best stuff currently on the market for reflecting light back on your plants. It is a little more expensive than black-white plastic but reflects some 99% of the light that your lamp gives off back at your plants. Mylar needs to be hung as straight as possible to be best made use of. It's very important for the set up of your growing space to make sure it has reflective walls, whether these are white walls or hung plastic makes no difference.

The construction of a screen is a half-hour's work once you've got the necessary materials mentioned to hand. I cut eight pieces of wood about 1.2 m long, and six pieces of about 1.70 m. I arrive at this length (1.70 m) as a result of my cellar ceiling being so high. The length you choose is best when a little shorter than the height of the room or space in which the growing space is to be situated. If your room is 2 metres high, then cut eight lengths of about 1.97cm. In other words, subtract a few centimetres from the actual height of the room.

Step 1 is pretty simple: we make a wooden frame by attaching two pieces of 1.2 m wide to two pieces (in my case) of 1.70 m in height. This is done real fast with a machine drill on which we place a

piece the two bits that need fixing together, drilling a hole and screwing them together. Once we have our wooden frame securely put together we can stretch the black-white plastic tightly over it. This is done most smoothly using a stapler to staple the plastic in place. Excess plastic can be trimmed away once it's attached.

So now we have our first reflecting screen. Onto this we need to attach one more screen in the same way as we just did the previous two, only using one piece of the 1.70 m wooden struts less. We just use the 1.70 m plank on the screen we've just made and attach to that two pieces of 1.20 m and one of 1.70 m. Stretch and staple plastic over it and again, trim off the excess. Now we have two pieces of screen attached to each other. In this way we don't make separate loose hanging screens. On the other side we do the same and make a screen there too, attaching it to the already existing wooden strut of the first screen. The result is that we now have three screens firmly attached to each other and with reflecting surfaces. This construction you now place in the chosen square meter that's your grow space.

As we've already noticed, the screens are a little bigger than the growing space. This is so that we still have room for the ventilator and suchlike to fit in. To finish off, we once more make a single independent screen with two pieces of the 1.20 m wood and two of the 1.70 m planks. The individual, loose hanging screen is the entrance door to the growing space. We put this against the open side of the three screen box, and our grow space is fully sealed off. Now all you have to do is move the screen door to inspect and care for your plants.

Now the light from the lamp stays in this way in the growing space and you will notice the difference this makes later when you come to harvest your plants. The smell of the plants is also kept inside and can be easily removed by filtered pump, so the rest of the space in the room you can put to some other use. Really creative growers of course can make a real jewel of a grow space for themselves.

Collection rack

A grow space should be easy to keep tidy, and that's why I choose to build in a sort of 'collection rack' into which the plant pots will be placed. To do this we build a frame 1.10 m wide, with a length of your choice, and a height of 15 cm. This is lined with the same black-white plastic (ensuring there are no holes in it now or later on). The advantage of such a rack is that it just makes for cleaner growing and this gives diseases less of a chance of gaining a foothold. All rubbish such as soil, dead leaves and splashed water end up straight in this rack. Once the harvest is over it is very simple to just sweep all this together and clear it away and in no time everything is spick and span for the next planting. If you don't use a collection rack then, as many growers do not, then in no time at all your space will be transformed into a space or room with a bit of dirt everywhere you look.

Also, if you have to flush your crop such a collection rack will prove its worth. 'Flushing' is the removal of excess nutrient or fertilizer from out of the medium (plant pot). By giving the plants way too much pure water the nutrient residues are washed out, as are the salts that accumulate from over-fertilizing (salts are found in fertilizer). Some growers choose simply to flush as a matter of course every two weeks in order to keep their medium as healthy as possible. With a collection rack you can flush the plants without any problem and without leaving a wet mess behind in your space. Another advantage is that when growing in soil you can let the whole rack fill with feed water and leave the plants to take what nutrients they need from it. This is the same effect as a plant pot standing in a tray. You have in effect made an enormous tray, in fact. The good thing about this is that the plants will be more difficult to over-fertilize because the plants themselves decide how much they are going to take up. If you need to be away for 3-4 days then you can just leave the collection rack topped up and the plants have enough food for those few days. The rack then serves as an automatic watering system. Later you can easily switch up to an ebb and flood hydro system.

So to recap: our aim is to make a light-proof, airtight grow space in which the fresh, CO₂-rich air comes in at the bottom of one side of the space, circulates up and out the other side. A sufficiently large suction pump ensures the air circulates and ventilators mix the fresh, incoming air with the air warmed by the lamp so that the temperature is the same throughout the space. Just add reflecting walls to maximise the effect of the light and a collection rack for keeping everything tidy, and Bob's your uncle. The grow space is now ready for planting!

In the next instalment we'll be looking at making our grow space operational.



This series was made in co-operation with Plagron; visit them at www.plagron.nl

Growing for Dummies Part 6

The Growth or Veg phase

By Bart B.

The germinated seeds peak out above ground and immediately spring up into small, blade-like green plants. They are still very fragile at this stage, and they look it too. What we are now going to discuss is the growth of this plant. The growth period is an important factor in determining the eventual size of the yield you will get from your plants. A good growth is even more important than the bloom itself.

Putting a plant through pre-growth means that we will keep the plants in their growth (also known as 'veg') period for between one day and several weeks, and we do this by putting the lamp timer on 18/6. This means 18 light and 6 hours night/sleep for the plants. The plant is now equipped to take advantage of the light in full and begin to develop in breadth and height.

The more growth you allow the plant, the more leaves it will develop, and develop them on stronger side-branches, thanks to which growth will accelerate even more. A plant that a week previously had only 10 leaves and now has 25 can naturally grow far quicker thanks to the increase in the amount of light it is able to make use of. So it is that in the beginning of the growth it always goes slowly until the plant has made enough leaves to reach a certain growing speed. At this moment you will quite clearly see that just one day's growing makes an enormous difference, and you will notice that the plants have made great progress with just that single day. More growth means more nutrients to be given, more oxygen needed... To achieve a good growth you have to continually keep all factors under firm control. If at any time there is a deficiency of oxygen in your growing space thanks to too little or no vacuum extraction, then your plants are going to be retarded in their growth potential.

Message of the Mediums

Various mediums (or media) can offer various growing speeds to your plants. The most common are still soil, coco and hydro (growing in water). Each medium has its own qualities, advantages and disadvantages.

Soil only enables a rapid growth as long as it is well aerated and light in structure. Because roots can best develop by growing through light, airy soil, this is what we have to try and give them. The faster the roots grow and spread, the quicker the plant

To achieve a good growth you have to continually keep all factors under firm control.

above ground can grow. Roots need oxygen, and hard ground that has been compacted contains less oxygen than a lighter mix. The advantage of using soil is that it contains nutrients and so one does not need to start so early with adding liquid feed. What can be important for beginning growers is that this prevents difficulties in the early stages of the growth. A poor start can be disastrous for the future blooming and harvest. Soil or earth is therefore a perfect medium for beginner-level growers and by learning with this you can build up your growing knowledge. Learn to grow well in soil and you can always fall back on it in the future.

Coco is an even more aerated substance to grow in. It is a favourite medium of mine and ensures the plants get an outstanding start thanks to the oxygen-rich coco fibres. Plants that have been growing in a more oxygen-rich medium are stronger and develop more – and more powerful – side branches. The drawback with using coco is that it contains no nutrients; it is food-poor. That is why you have to begin very early with adding liquid nutrient. This could create problems, but coco is very user-friendly and difficult to over-fertilize. It is perhaps even more difficult to over feed it than soil.

Over feeding comes about from an accumulation of salts that are present in all feedstuffs. With the passage of time, if you are using too high a dose of nutrients (being a beginner grower), the plant can not take them up quickly enough any more. The leaves will begin to develop ugly stripes, first visible at the edges where the leaves are expanding in size, then the leaf dries out and dies. To prevent this you have to flush your medium. Flushing is giving extra water so that the accumulated salts are washed out of your medium. If you have a plant with very deep green leaves then this is a sign that there is sufficient nutrient present, and to give it more food at this time could well lead to over-feeding. If you are not sure about it, wait without giving any more nutrients and the plant leaves will turn a lighter shade of green, and then you know it is okay to give it more food. If you leave it too long the leaves will begin to turn yellow.

Growing on hydro gives you the greatest growth speeds as long as you go about it in the right way, thanks to the presence of a wealth of oxygen available to the roots. It is far more work-intensive than growing in soil or on coco. I personally choose coco because it is a good middle way between soil and hydro. You achieve good growth results but do not have to give it too much attention. It must be said that once you have hydro growing off pat, it goes really smoothly. But with hydro you are more dependent on electrical apparatuses, and if these play up or you get a power outage, then you are up the Swannie, or you have to lash out on back-up power.

A good start is worth gold

Nearly all growers use root-stimulating compounds to ensure a powerful growth. As has been the case so far, all the action here again takes place under the soil in the beginning. A small seedling still has very few roots. The idea is that we are going to stimulate the plant to produce as many roots as possible, as fast as possible, in the medium. The most commonly used is liquid root stimulator, something that all the big nutrient making companies tend to have in their range. Root stimulator makes sure that the roots receive a growth impulse. That it works can usually be best noticed when growing in soil. The root stimulator will also make it possible that other plants in your soil mix also begin to grow. So don't be alarmed if you suddenly find a different kind of green poking its head up out of your soil than you expected.

We generally dilute root stimulator with water, although it is used undiluted for dunking cuttings into to prompt them

If at any time there is a deficiency of oxygen in your growing space thanks to too little or no vacuum extraction, then your plants are going to be retarded in their growth potential

to root during clone making. We do not use root stimulator together with liquid fertilizer, since this reduces the effectiveness of the stimulator. So in the plant's first few days we need to add root stimulator – do not mix it with any nutrients. In this way we can get off to the optimum start.

There are also friendly (symbiotic) fungi that we can apply to promote good root development. Nova-Star-T from BioNova is a small bag filled

with a powder which contains spores of these beneficial moulds, which you mix with water. With this you soak the cutting blocks in which your seeds or clones have been planted. The mould works as a symbiont and needs the plant in order to survive. The plant in turn uses the mould as an 'extra root system'. Wherever the mould grows the plant can also take up nutrients from. The effect you get is that the plant gets a much stronger and healthier start and has access to much more of the medium's nutrients. Almost all products that have a stimulating effect on roots are useful for the start of the growth period. Your mission if you encounter them is therefore to mollycoddle your roots until they're nice and strong.

The importance of the growth period

With the growth phase you can largely determine the dimensions, shape and yield of your plants. There are various ways of raising cannabis and these are to a large extent dependent on their way of growing. You can put many plants into a square meter; then it is important not to give them much growing time. The plants may not be allowed to get too big or they will suppress each other. The fewer plants you choose to raise, the more growth you can allow them.

Seed plants and clones have different growing preferences. Clones are older plants than seed plants and therefore are already adult and so need less growth before being induced into blooming. A seed plant goes through various stages and becomes mature after about a month of growth. The better you are as a grower the faster you can bring a seed plant to adulthood. This does not only depend on time but also the bulk. If you look at a clone then you'll see that the side branches run step-wise. If you look at an immature seed plant then the side branches are proportionately straight. Once the seed plant has become adult then the side branches will also begin to grow step-wise.

By giving them more or less growth then, you can determine the dimensions of your plants. But remember that simply making a plant bigger does not necessarily mean you will get a bigger yield from it. It is especially important as a beginner grower to appreciate that a plant undergoes a tremendous rate of development once it is put into bloom and will continue to increase in size for a good three weeks before it reaches its eventual size.

If at any time there is a deficiency of oxygen in your growing space thanks to too little or no vacuum extraction, then your plants are going to be retarded in their growth potential

The perfect growth

What is the perfect growth? A perfect growth is when the plants have reached the ideal size once they have been set to bloom, and when all plants can still develop very well without getting in each other's way. The entire square meter therefore is filled by the plants with no gaps left between them, but it is not so full that the plants compete with each other for resources. By allowing them too much growth or using too many plants, all the plants will develop less well. A plant needs space in which to allow her side branches to develop and so increase in girth. If she has not got this then she will increase in height. The drawback with this is that the lowest side branches will be weak and will not develop very heavy buds.

In order to get a good harvest you will have to achieve good bud development in the lower branches as well as up top. Anyone can grow themselves a big head bud; it's something else to get equally good weights off the lower reaches. But if you can, this is how you get really good harvests from just a few plants.



An adult plant



An immature plant

As a good rule of thumb, eight seed plants given three weeks of pre-growth should fill a single square meter under a 600w lamp and will give a yield of 500 grams. That is approximately 63 grams per plant, a figure that is not exactly super-high. I usually keep an eye on my plants and once they are between 25-50 cms high and have become small adults, with small, strong side branches, then they are ready to put into bloom. You can put clones into bloom sooner, since they start out more mature. For the same reason, do not let them get much bigger than 25 cms. Clones are more branchy which means they let less light through to the lowest branches. A plant that is too big will allow little to no light through to the lowest branches, which will therefore not develop buds. Letting your plants grow too big is therefore a waste of time and energy. You are restricted by the power of your lamp and this will ensure a good, heavy bud development only in the top 20 cms of your plants. The lower you go, the smaller the buds will be. By making sure that you let as much light as possible get through to the lower reaches of your plants you will maximise the development of the buds down there.

Nutrition

During the growth period the plants most need nitrogen and potassium. If your plants become deficient in either of these during the grow period they will turn yellow. If you choose to grow in soil and use a good mix from a grow shop, that will contain enough of these key nutrients for three weeks to a month. The advantage of this is that you do not need to add extra liquid fertilizer until the bloom period. The extra price that you pay for the better soil is therefore worth it. You also save yourself a load of potential problems. Cheap soil mix can quickly lead to deficiencies because there is little nutrient in it that is readily available to our plants. So you have to begin adding liquid fertilizer earlier, which is not a problem in itself although some people do manage to over-fertilize, and so it is always better to wait as long as you can before you have to start fertilizing.

Now you cannot avoid making mistakes while growing cannabis. In fact, the more the better. If you learn from your mistakes and know what you did wrong then you won't make the same mistake again. Above all follow the instructions on the bottle and use a millimetre syringe to exactly measure out the quantities you want to add to your feed water. Sufficient nutrition without going overboard will result in wonderful, healthy growth in your plants.

The bigger your plant gets the more fertilizer you will have to give it. So you will notice that if you continue



to give the same concentration of nutrients to your plants, at a certain point they will start to develop yellow leaves. The plant is trying to make it absolutely clear that she needs more food. The dose (strength) of your feed water needs to be raised or nutrients should be given more frequently.

The first two weeks growth

After coming up, the seedlings pictured above were planted in Plagron's Royalty Mix. This pre-fertilized soil contains enough nutrients to last for a few weeks. During these first weeks I gave root stimulator to the plants. As time passed the plants began to grow ever faster. As an extra boost, during this growth period I also gave them Alga Groei, a liquid growth feed from Plagron. This is not absolutely vital since there is enough nutrient in the pre-fertilized soil mix, but by giving some extra nutrient I am able to maintain the soil's nutritional value level. If we were to now give no more food then eventually after a few weeks the soil would be worn out and depleted. If we give regular extra nutrition, we avoid having to suddenly start giving heavy duty fertilizer. Is it clear what I'm driving at here? Naturally, we avoid giving too much food, since this can create to high a risk of over-fertilizing.

Besides applying root stimulator and liquid growth feed, there is actually very little more to do in this growth period. We make sure that the lamp is moved so that it stays between 30-40 cms above the plant. The best way to ensure this is feel with your hand how hot the lamp is burning at leaf level. You place the lamp after a week and a half as close as possible to the plants before they can feel the burning hot, dry air from the lamp.



The correct height varies from grow space to grow space and the number of lamps in the space. If you have a good air circulation then you can let the lamp hang a lot lower because a lot of the dry, hot air is removed from the immediate vicinity of the plants, causing them less stress from the output of your lamp(s).

We keep the air moisture levels during the first weeks as high as possible too because the plants can grow so much faster and make their leaves more easily. A high air moisture content can do wonders, and we can achieve this by turning off the air extraction, or letting it run on a very low setting so that the moist air is not immediately pumped out of the growing space. An air humidifier helps of course too! We aim to keep the temperature between 22-28 degrees Celsius and at night between 18-22 degrees. Just so long as the temperature does not fall below 16 degrees then you will not get any significant loss of growth.

Do not forget to let your lamps do as much of their work as you can at night if you have cheap rate electricity at this time of day, and over the course of your growth you can save a fair bit of cash.

Green plants have now been raised, you can caress their sturdy stems and savour the taste and smell of your future crop already. Now you just need a few more months of patience to practice before you can enjoy your well-earned heavy buds at harvest time.

In the next issue we'll be looking into the start of the the all important blooming period.

Just so long as the temperature does not fall below 16 degrees then you will not get any significant loss of growth.



This series was made in co-operation with Plagron; visit them at www.plagron.nl

Growing for Dummies Part 7

Telling your SOG from your SCROG

Bart B.



Before we can switch our attention to the flowering or bloom phase, we have to make sure that we have raised large, healthy ladies during as short a growth or 'veg' period as possible. Their size and health will determine the larger part of our eventual yield.

The idea is that we raise the germinated seedlings during their growth period as quickly as possible into sturdy, vigorous green bushes. To make sure they develop a sturdy stem it is advisable to have a fan running in the grow space. This will ensure an even climate by mixing cool and warmer air, and keep a soft breeze blowing over your plants. It is this that will stimulate the plants to strengthen their stems, and a fatter stem can hold more and heavier buds. You will see the result of using a fan really soon. The plant adapts itself incredibly quickly. Just set up the fan and turn it towards your plants; you will see that they move as they are blown hither and thither.

After just a couple of days, they will not be moving any more; the little plants will be set firmly where they stand, unaffected by the breeze. Positive proof that the plant has quickly taken the steps needed to stiffen up her stem. If you like, you can turn up the intensity of the fan, if it has higher settings. Make the breeze strong enough to once again make the plants sway back and forth. After a while the plants will have reinforced their stems enough to stop the stress from the 'wind' again. The end result is that you get strong, muscle-bound, bush-like plants rather than thin, spindly ones. Making sure you have a good breeze in the veg phase is a very cheap technique of raising your yields.

By growing under lights you can get really massive buds; heavy enough, in fact, that your plants' side branches risk being not strong enough to support them - and you risk losing some yield. As you will no doubt have sussed by now if you have already had a harvest from your garden, it is usually the plants with the sturdiest stems that produce the most bud, though of course there are always exceptions to this rule.

Feeding time

After a little while you will have to begin giving your plants feeds in order to support their rapid growth under lights. The better the quality of earth you are growing in (i.e. the more nutrients it contains), the longer you can wait before having to give them their first supplement. But it is still advisable to give a little nutrient now and again even to plants growing in a heavily pre-fertilised mix. By giving food regularly you ensure that the medium is not suddenly depleted. You are constantly topping up the mix.

In normal circumstances, a good soil mix will need supplementing after about three weeks of growth in it, but with regular addition of nutrients it will take five or six weeks before it is exhausted. This will create fewer problems, since if you just leave your soil mix then you will suddenly have to start adding considerable amounts of liquid nutrient. This is not necessarily a problem, but it can be for beginner growers who are not yet sure how much feeding the plant can handle, and in no time at all you can end up with yellowing plants.

Nutrition is something that you have to gradually build up, as the plant goes through various phases. The small seedling needs little to no extra feeding and you are best off waiting a week and a half before giving them their very first meal. Then you should use half the strength stated on the bottle. The EC of the nutrient mix will then be around 1.4 depending on which brand of nutrient you use. Once the plants have grown bigger you can begin giving them a higher dose. In this way you go on adding a little bit more nutrient to your water.

What often happens if you keep adding the same amount of feed is that your plants will develop a deficiency. You are giving the same amount of nutrients but your plant is getting bigger and bigger and so can use - or needs - more, and this is something every grower needs to keep an eye on. This is why I am no big fan of off-the-peg growing plans, because every growing space and every plant is different. You have to look at your plants themselves and then decide what is best for them.

Common deficiencies

The most common deficiencies you might experience are nitrogen, potassium or phosphorus. It is especially during the growth phase that your plants are susceptible to deficiencies in nitrogen and potassium. In my experience it's usually a potassium deficiency. A nitrogen deficiency is easy to spot as the tips of the leaves start to turn yellow and the leaf gets yellower towards the leaf stem. The plant sucks all the nitrogen out of these leaves because it does not have enough elsewhere. So old leaves are drained and

all their nutrients taken to where new foliage is being produced.

A potassium deficiency is the most common deficiency I come across, and it is recognisable by the fact that the leaves yellow from the outermost edge inwards, towards the main vein in the middle of the leaf. It is easy to distinguish from a nitrogen deficiency. Sometimes you might have both at the same time, and then the leaf will turn yellow from the leaf tips and the outer edge simultaneously.

During blooming is when you have most chance of getting a phosphorus deficiency, and/or in potassium too. A phosphorus deficiency is harder to recognise, but the plants develop a dark purplish appearance all over. Their bloom is interrupted too, so they end up smaller. But the most important thing to know is that these deficiencies in the short term are not damaging to the plants. Deficiencies are therefore actually simple to learn about and easy to remedy. By giving extra feed to your plants you can watch the yellow leaves turn a lovely green again. They gorge themselves until full with a fresh load of nitrogen, phosphorus or potassium. That is why as a beginning grower it is better to under-feed than over-fertilise.

In this way you can learn the boundaries of the plant while letting them experience shortages. You always begin with a few plants and after a little while, start giving them a bit more, since it's now going well. And if you then encounter problems, ones you do not know the cause of, then you know things are a bit more serious. If you know how to recognise a certain deficiency then you can rule this out straight away and look for other causes of the problem.

That is why it's a good idea when starting out with growing to take a single plant with which to experiment with by giving it absolutely no extra feeding and waiting to observe its deficiencies. When doing so try and find out which deficiencies you are experiencing by chatting about the symptoms in online forums and asking advice, or talk to friends or whoever. Once you have this knowledge soundly under your belt then things will go much more smoothly with future crops.

Recognising colours

Every beginner grower is a top grower as long as he is not colour blind. To really have your feeding sussed you need to spend time with your plants and observe them. It is that simple. When your plants have sufficient of everything then they will have a brilliant green colour and a healthy sheen over all their leaves. This is the optimum growth and bloom that we have been striving for in action.



First week of flower

If within a short while after this observation you do not start to raise your nutrient levels then certain deficiencies will start to creep in. Just look at your plants' leaves, and you will observe that they soon become a lighter green. When your plants turn a lighter shade of green this is an indication that they could use some extra food, and if you don't pay attention and wait too long before you give it to them, the leaves will turn yellow. So it is really easy to notice when things go sub-optimal.

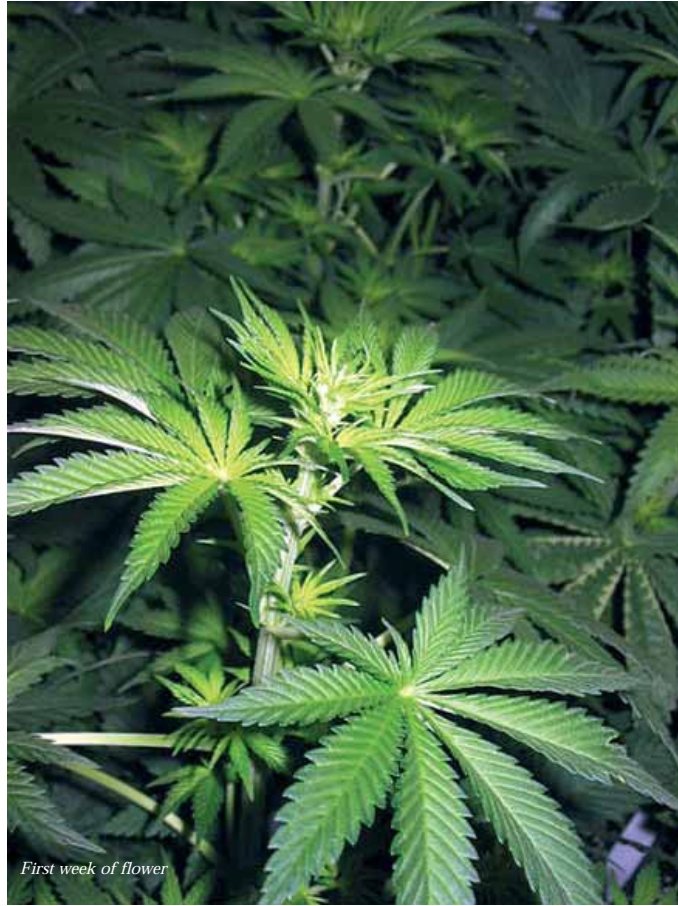
Some older leaves that get little to no light will automatically turn yellow. The plant has no further use for these old leaves and removes all the useful nutrients from them. So don't go leaping to the assumption that you have a nutrient deficiency just because a few leaves turn yellow.

Over-fertilizing will soon occur from the build up of salts that accumulate in the soil mix, or by giving much too heavy a dose of nutrient to your plants. Salts can be flushed away using an enzyme preparation. This product makes sure that dead root matter is removed – a good thing since that the plant is constantly making new roots and letting old ones die off – as well as salts from the substances you have been applying. This does not eliminate all chances of over-fertilization, but lessens the chances of it and makes your medium healthier, which your plants will also appreciate by growing and blooming better.

Over feeding

When you do manage to get tip-top, lovely, dark, super-green plants it is time to watch out. Now giving too much nutrient might lead to over-fertilization. After all, the plants have more than enough food on their plates. So you are best off waiting to give them any more food until you see that the plants have started to develop a paler colour once again. Make a note of how many days it takes before they do this. If it takes a couple of days, for example, make a mental note, go back to feeding them again and they will get their dark green colour back. Once you've established this period, you can safely give them food every two days. After all, you have now tested how long they can go before they start to need another feed. If you're not sure whether your plants need feeding or not, then it's best leave them a while longer.

To make things easier for growers there are such things as pH and EC meters. The pH is the level of acidity of your medium, which determines how easily



the plant can take up certain substances and so in what quantities these can be given. With an EC meter you can measure the precise level of nutrients you are about to give the plants. With it you can slowly build up the dosage more easily while you raise them. These devices are handy if you want to get everything just perfect, but they are not a real 'must have'. That is also why it is always recommended that a beginner grower starts out growing in soil, because these instruments are not necessary. The soil acts as a buffer. Once you've got your basic growing technique off, then it's worth getting EC and pH meters just to make things easier for yourself to raise even better plants.

Grow style

The two most common methods of growing plants are the so-called sog and scrog. Sog (which I believe is short for 'Sea of Green') means that we have many plants per square meter and then give them just a few days or even none at all before sticking them straight into bloom. The result of this is that the plants produce few or no side branches and limit their upwards growth. Then you will end up with a pole of buds from top to bottom. This method is especially liked by commercial growers.

By giving a little longer growth to your plants they are given the time to develop side branches, then you get bushy plants and this method is used by the majority of growers. If you only have a few plants in a square meter

then you can choose to employ the scrog technique. By 'scrogging' I mean that we are going to remove the main top shoot from the plant. It's a form of 'topping', basically. The main shoot is to be found in the centre of the plant, on the main stem. It makes new leaves and side branches. When we snip off this head then the plant will stop increasing in height. What happens then is that the plant spreads her energy across the remaining side branches. All side branches will therefore become stronger in their growth. In this way you get a broad plant with side branches that are roughly the same height. The majority of buds in turn will be found on the uppermost side, which is where most of the light falls. The plant will end up shorter but fatter.

It's best to do any topping fairly early – after two weeks growth, at least a week before the bloom is scheduled to start if you want to enjoy its advantages. You must give the plant some time to get used to the process. In this way with just a few you can achieve as big a harvest as possible.

The net effect

An expert scrogger will fix a net over his plants and this then trains the side branches to be nice and evenly spread apart, so maximising the amount of light each branch receives. Once in bloom, you get a gorgeous layer of buds. With the sog method you end up with just one huge bud with only a few medium to smaller buds on the plant. With the scrog method you get lots

of medium-sized buds. An advantage of this is that you also have a lower chance of developing a mould infection, because you have lots of little buds in place of one big one. So if you live in a damp environment or have trouble with too high an air humidity inside your grow space, then scrogging is a good method of keeping your chances of bud rot down.

The yield from both growing methods is pretty much the same if you do them right. A lot depends on what variety of plant you are using. One sort of plant is better for a particular growing style than another. If you use the sog method you are better off with a plant that is known for producing an enormous head bud and which forms elongated buds and few side branches. With scrogging you more want a variety that does make loads of side branches and above all, that produces plenty of buds on these and grows a sturdy stem.

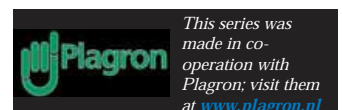
If you decide to scrog, then it is advisable to remove the lowermost branches of the plant. We want to make sure that as much energy as possible is directed to the uppermost branches, where the light from the lamps is going to be falling. The lowest side branches get little to no light and so will make fluffy buds. By getting rid of these you will get good air circulation under the plants and all available energy will be sent up to the higher buds. You can also do this with the sog method if you notice that the leaf coverage is getting too dense. By removing the lowest side branches of the plants in a sog crop, the higher situated branches will develop better, stretch themselves out and thereby grow closer to the light source, getting heavier as a result.

There are many variations of these which you can experiment with of course. Some growers snip all the side branches off during the growth phase and let only the best developed 4-6 side branches behind on the plant.

To make our own plants feel as welcome as possible I would advise you to always give them lukewarm water – around 23 degrees. To us this actually still feels rather cool. But cold water makes the roots of our plants recoil in shock and it will retard the growth and blooming of the plant as a result.

To finish off, I'd like to add that the growth period is as important as the bloom period, if not more so. The serves as a basis for a healthy bloom period. The better you get at growing, the faster you be able to get your plants to their optimum size in pre-growth, thereby saving the time they would have had to spend in the growth period, thus saving not just time but electricity too.

In the next issue we'll be looking into the start of the the all important blooming period.



Growing for Dummies Part 8

From the first signs of buds to an exuberant bloom

Bart B.

The end is almost in sight, and in just another couple of months of blossoming we will be ready to get our sheers out of the cupboard. In order to get the very best out of each plant we need to tune all the possible factors and harmonise them with each other. After all, it often the tiniest improvements that lead to the most enormous results. This issue I will look at each of the important factors in turn, as well as how you can quickly remedy a nutrient deficiency.

Blossoming is well and truly underway and after a couple of weeks white hairs start to sprout on various parts of the plant. The formation of the buds is now slowly but surely underway. As I have said before, do not forget to separate the male from the female plants. The males that develop will soon start to develop little balls that within about three weeks will be ready to burst and spread pollen all over the place, fertilising the hairy females.

The first three weeks of the blossoming period is in actual fact a sort of growth period. After setting your plants into bloom by putting the lighting on a 12 hours' light / 12 hours' dark time scheme, the plants will start to bloom (grow) explosively; they can very quickly double or triple in size. Especially if this is your first time growing it is a really wonderful sight to behold, watching that little sprog of a bush transforming into a strapping whopper with buds swelling bigger and bigger, whose THC-rich crystals begin to pile up in mounds. The specific odour of the plant develops more and more, leaving you barely able to wait to harvest some of those buds and get enjoying your first spliff of the new harvest.

Growth- and bloom-feed

During the blooming period we will be switching over to using bloom feed and we can stash away any remaining growth nutrients until the next time, however little we have needed it to date. If you have used well pre-fertilised soils, then you will easily have been able to go a few weeks without having had to use any liquid fertiliser. Naturally, your pre-growth period should not last too long, otherwise you will have to use growth nutrients. For this set-up we solely used Plagron nutrients; some brands use just a single bottle that you can use to make up both growth and bloom nutrient, while others make separate growth- and bloom-nutrients.

Many growers also continue to give their plants growth nutrients into the first or second week of the blossoming period because this is a sort of transitional period and the plants still have a great thirst for nitrogen and other building blocks for their rapid development. By doing this the

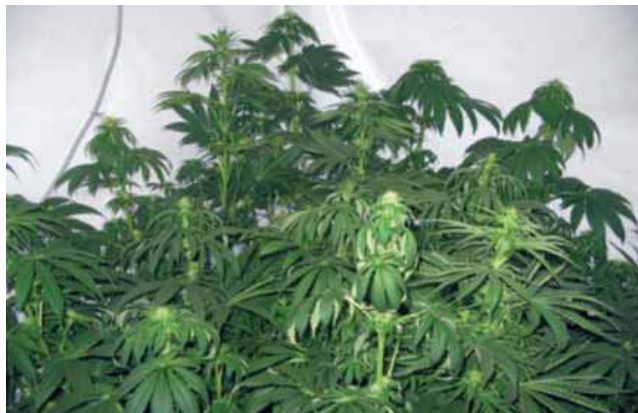


Close-up of a bud after 2.5 weeks in bloom

plants will also end up somewhat bigger, given that the bloom feed stimulated the plants to switch their attention (and resources) more to bud formation than increasing their size. In this way, you can use your giving of nutrients to play around a bit with the eventual size of the plant.

If you already have good-sized plants and would prefer that they remain a little compact due to constraints on the space you have available for them, then just give them bloom feed immediately. If your plants are on the small side and will not fill your space optimally at this rate and you want increase their size as much as possible, then you can continue to give them growth feed for a while longer to stimulate this. Of course, these differences are not huge, but every little helps, and a few centimetres more here and there can make a nice difference.

After three weeks' blossoming you will notice that the plants have reached their maximum size. The plants have stopped putting on any more height or girth and now they will be doing the real work of forming their buds. At this moment it is important to give them bloom feed, as the plants have a greater need of phosphorus and calcium. These are some of the most important building blocks for a good bud development. This means it is a good idea to also get your bottle of PK 13-14 out. PK 13-14 (I used Plagron's PK Plus) is a separate bloom feed used as a supplement to your regular bloom feed. As you might have surmised from the name, it contains extra phosphorus and calcium that your plant really needs to be able to reward you with big, fat buds. There are two ways of administering PK 13-14. You can start with small doses from the first week and then slowly build up the dose each week. So start with 0.25 ml / per litre in the first week and by the third week aim to be giving 0.75 ml / per litre. How much you need to give is usually written on the side of the bottle too.



Overview of the seed plants after 2.5 weeks in bloom

The second way is to wait until the fourth week of bloom has begun, because it is this moment at which the most bud development begins, and then go straight to giving them 1.5 ml/per litre immediately and continue with this until the end of blooming. In short, using PK 13-14 makes for harder and denser buds by supplying the plant with a wealth of building materials.

giving them nutrients every day in the first few weeks, then maybe they only need them every other day now. It is something to pay attention to. Every plant blooms in its own way, so some varieties have a very rapid increase in bud size between the third and fifth week of blooming, while other varieties put their real weight on as measured in grams in the last weeks. This means that you just have to look carefully

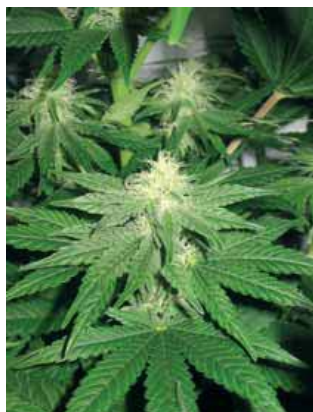


A week later, after 3.5 weeks of bloom there is already a clear change in the form of the buds

In order to achieve a good bloom there must be sufficient carbon dioxide for the plants. They need CO₂ for a vigorous growth and bloom during the daylight hours.

Do not forget too that at this stage you must tailor your nutrient-giving to the needs of the plant. This has now developed very different nutritional requirements to when she needed lots of feeding for her strong development during the preceding three weeks. If you continue to give them as much nutrient as you have been doing, you run the risk of over-fertilising very quickly. If you had been

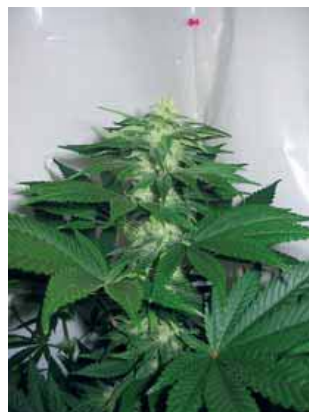
at your plants (and listen to them) to know what their nutritional needs are at any particular moment. I mention this because many beginner growers start off well and think that they have everything running smoothly, when after a few weeks the needs of the plant changes and the grower sticks to her old pattern, which can then result in him only managing a feeble harvest.



The production begins to gather pace nicely (3.5 weeks' blossoming)



Young buds in full-on development mode



This Orange Bud will just get fatter and fatter



White plastic ensures a good reflection of light for the plants placed outdoors

Feeding the leaves

The plants bloom enthusiastically and are fed with Algal Bloom. Every week they are sprayed with Phytamin Leaf Feed, and as a bloom stimulator, Plagron's Repro Forte is applied, which serves to ensure that more sugars are transported from the leaves to the buds. Every two weeks enzymes are also given. These enzymes clean your medium by removing dead roots and reduce the salt accumulation that has occurred from the application of nutrients.

Seed plants have the tendency to grow in height earlier than clones. So by now they will be considerably larger and for that reason I strongly recommend if you have limited head room in your grow space that you 'top' or bend your plants. You bend a plant by pulling down the crown bud with string fixing it bent under slight tension. By doing this you get the same effect as topping (removing the top of the plant) but with the advantage of you getting to keep the crown bud. The lowest-situated side branches will develop better and the plant will develop more buds, on a wider girth. Grow spaces that are lower than 1.5 metres in height will need their plants topping or bending earlier, or else given a much shorter growth period.

Better too little food than too much, but if you should experience a severe nutrient deficiency that you cannot solve by recommencing with the bloom feed, then the quickest way of solving the problem is by applying leaf feed. You make up some nutrient mix as you normally would and spray your plants with the solution. Plants can also take up nutrients via their leaves, and the advantage of doing it this way is that you do not change the pH of your medium. Spraying your plants is best done just before you turn off the lamps and / or just before you switch them on.

Better too little food than too much, but if you should experience a severe nutrient deficiency that you cannot solve by recommencing with the bloom feed, then the quickest way of solving the problem is by applying leaf feed.

The problem that presents itself when you get a large deficiency to deal with is that when you give the plants a nutrient solution (via the medium) you have to wait until the plants are thirsty again. There is no point in giving them a feed solution every day if the plants can't actually take up what they need. You're forced to wait a while, certainly longer than you would wish, before you can adjust the deficiency properly. By combining watering with the application of leaf nutrient, then the plant gets what it needs immediately via the leaves. Generally, you will notice the improvement the very next day. You will observe that the yellow spots on the leaves will have regained some of their colour again. By continuing to give feed water and leaf nutrients, the plants will soon once again be a ravishing shade of green.

Another advantage of leaf feeding is that you can safely experiment to find out what kind of deficiency your plants have. Many growers are stricken by doubts as to whether they are dealing with an under-fertilisation or an excess. By simply spraying the leaves with a feed solution you can very quickly observe if there is a positive or negative reaction from the plant and from that deduce what the problem is.

Something that is always handy to have around is a set of bottles filled with individual nutrients such as nitrogen, phosphorus and calcium. With these you will be more easily able to experiment with your nutrient problem. Suppose you have a nitrogen deficiency and are forced to use a general nutrient solution to correct it; you are also giving the plant the elements that it does not need too. Adopt the simple expedient of keeping a separate bottle with only nitrogen in it. Adding this will raise your plants nitrogen levels without influencing the other fertiliser components. This bottle system is especially useful for outdoor growers who are in the process of raising large plants in pots and needing to apply

large volumes of nitrogen. Particularly during heat waves it is handy to spray your plants with a nitrogen solution, or simply increase the percentage of nitrogen in your general feed water. Obviously, the same process can be used for phosphorus and calcium deficiencies.

Ventilation

In order to achieve a good bloom there must be sufficient carbon dioxide for the plants. They need CO₂ for a vigorous growth and bloom during the daylight hours. The more CO₂ in the air the faster your plants can develop and the greater their tolerance for high temperatures. How you have your grow space set up is very important. An optimal space is one in which all along one side, at the very bottom, holes have been bored to allow air in, while on the other side there is a vacuum extractor – placed as high up as possible. This set up offers an optimal air circulation from one side of the space to the other side. The CO₂-rich air that enters flows over the plants, is used by them, then the CO₂-depleted air is sucked out, drawing fresh air back in via the bottom-most holes.

If growing in larger spaces and you are using a fan or air blower of some sort, this can be placed at the top of the space if you are also using an air-sock. The air blower works in exactly the opposite way to a vacuum pump: rather than sucking air out, it blows air in. This is unnecessary when growing in small spaces, which have sufficient air renewal with a pump. An Air-Sock is a long sock made from textile, between 3-5 metres in length. If you just use an air blower then you are usually getting cold air pumped into one side of your space, which means the climate on this side is not at its optimal temperature. Nor is the CO₂ spread evenly over the plants. The Sock works as follows: you fasten it on top of your air blower and fasten this to the ceiling. Once the blower is switched on then the Air-Sock is filled with incoming air, which then enters the space 3 to 5 metres into your space. After that the CO₂-rich air is evenly spread throughout the space, and the effect of this is that all your plants can better enjoy the fresh air, plus the cold outside air is given time to warm up, so the climate remains nearer to optimal. It

is simple but effective. Having too little ventilation produces weaker growth and blooming, the plants can not develop well, and yellowing of the leaves can occur.

A rotating fan is another important piece of grow space equipment. This does not only ensure that you have good air circulation in your space which mixes the warm and cool layers of air together, but your plants also like a nice breeze. Thanks to the breeze your plants will develop nice thick stems, and they will mature into slightly smaller and more compact adults – and as you know by now, a thick stem determines to a large extent the eventual yield your plant will be able to produce. By and large, the plants with the thickest stems will also be the biggest yielders.

Bud formation

The most important weeks of the blossoming period are from the third to the fifth week of bloom for the majority of plants. Given that now most plants will be devoting most of their energy to developing their buds, during these coming weeks they are going to increase very rapidly in size. So now is the time when you really have to make sure everything runs as smoothly as possible. The beginning of the third week is also the last chance you have to spray your plants with an organic pesticide. The buds are not yet hard and compact. It can be a good idea to spray them now preventatively, rather than wait until the fifth week and find that your buds are now crawling with bugs, by which stage it is not advisable to spray.

There's not much more to do than simply giving nutrients during this stage – besides of course enjoying the sight of these gorgeous buds gradually appearing. More and more white hairs are being produced and slowly but surely separate small buds grow into each other to create one huge bud.

In the next issue I will be telling you more about the blossoming phase of the cannabis plant.



This series was made in co-operation with Plagron; visit them at www.plagron.nl

Growing for Dummies Part 9

The last weeks of blooming

By Bart B.



Some Orange Bud buds nearly fully developed after five weeks of bloom

After weeks of mounting excitement the long-awaited moment – the harvest – is finally within arm's reach. The plants have grown incredibly quickly through their first three weeks of blossoming and have undergone a real transformation, after which began the slow formation of the buds. Ever-increasing numbers of white hairs appeared and formed the basis of the eventual buds, over which we have been drooling in anticipation. After five weeks of blossoming there should now be hard, THC-dripping buds found on your plants, that are still growing and expanding but which have now put the larger part of their development behind them.

The blossoming plants should still be lovely and green, and the THC production firing on all cylinders. The leaves around the buds will become stickier and stickier and the many THC-rich resin glands produced on them will later be used for making a nice lump of hash with. So at the harvest that is just around the corner we will have the leaves that we have trimmed from around the buds, and also the larger leaves that contain THC, both of which we will lay to one side to dry out well. We will then also have to decide whether we want to make water hash or skuff. There will be more about this in a future article.

In any case, as long as you have not given your plants an overdose of fertiliser then the very sight of your garden should by now be enough to get your mouth watering. It should look marvellous under the strong HPS illumination, which makes the numerous THC glands on your buds and leaves dance and glint in the light. Because blossoming plants have additional demands for phosphorus and calcium, we give them plagron pk 13-14 as an extra stimulation of the development of their blossoming. These substances are found in every basic nutrient mix, but in lower volumes, and with pk 13-14 we can make up the shortfall. The buds will be harder



A White Pearl that after 6 weeks of blossoming is still hard at work

and more compact as a result. If you are a newbie to growing, you are best to begin with the basic package of fertilisers, which consists of base fertiliser containing all NPKs (nitrogen, phosphorus and calcium-containing compounds), plus a pk 13-14 and a root stimulator. With these basic



Close-up of an Orange Bud bud after 6 weeks of bloom

any sense to add these relatively more expensive products immediately because they only help as long as everything has proceeded smoothly during the grow. Since you as a relative newcomer will undoubtedly have made a number of mistakes, then these products will in all



Since every seed is unique there can be considerable difference between individual plants grown together in terms of size, smell and taste.

products you will be more than able to grow yourself a great harvest.

likelihood be overkill and unlikely to have much added value. Once you have worked

As long as you have not given your plants an overdose of fertiliser then the very sight of your garden should by now be enough to get your mouth watering

If you've got the bit between your teeth and it looks as if your harvest is going to turn out to be mostly problem-free, then you can apply a number of additional products such as a bloom stimulator and/or boosters and enzymes. It does not make

through your main mistakes then these products do indeed offer something of value to your eventual harvest. Enzymes take care of removing old root remains and reduce the salt accumulation in your medium that comes from giving them

additional nutrients. Once you have been using the same bottle of nutrient for a while you will notice the top develops a white, crystalline deposit on it. These are the salts I'm referring to. By using organic nutrients such as plagron you can also reduce the accumulation of salts, since these contain considerably lower levels than the bio-mineral nutrients.

On pots and uniformity

The size of pots that we have been using is dependent on the number of plants that we are growing and the number of weeks growth that we gave them. These factors are connected to each other. If we have a larger number of plants to pack in then we need to use smaller pots and give the plants less time in growth. For example, if we have 16 plants in one square metre and give them a grow period of between 5 and 9 days, then the plants will be happy with 5 litre pots. If we were to reduce that number to 10 plants and give them a grow period of 10-14 days then the plants will need 7-11 litre pots. So the fewer the plants we grow, the larger the pots we will use and the longer time in growth we will give them. The yield you end up with is more or less the same whichever method you use. The only difference is in the amount of time we need in total to get our harvest. So someone with 16 plants and using the popular bloom period of 8 weeks will take about two months and five days from start to finish. If you have 10 plants then it will take you about two months and two weeks. In other words, you will take longer to get the same yield.

Commercial growers in particular find it important to get to harvest in as short a period of time as possible. That is why they often stick 20 plants in a square metre and give them only 1-3 days' growth depending on the medium that they are using. In this way they can harvest every two months if they use a variety that does the business in 8 weeks. In general, plants with more of a Sativa influence in them take longer to bloom than those dominated by Indica genes. So you see that you can be guided in your original selection of plants as much by the blossoming period as by the eventual effect of the dried smokeable material. If you prefer a more 'up' high than a heavier, bodily stoned, then it is advisable to plump for a Sativa cross that takes a little longer to bloom, say between 8-10 weeks. Even so, you must always take account when growing from seed that every plant is unique and there will always be early-blooming, medium long-blooming and late-blooming individuals in your selection. If you read somewhere that a particular variety is 'very uniform' this means that there will be little difference in the time to harvest between the adult plants. So you can expect 80% of the plants to end up with the same growing time, and when a variety has less

uniformity there will be larger differences between the plants in their blooming period as grown up plants. This is also an important factor you should take into account when choosing a particular variety.

Ventilation

All the nutrients and water that you give your plants during their blooming period have to go somewhere. The water is evaporated from the leaves of your plants and then floats freely in your growing room. Since at the beginning of the blooming the plants still had little vegetation and were rather small, then little moisture was released into the air by the plants. Thanks to this, the air moisture was if anything too low rather than too high. Because our green plants grow more rapidly in a moister climate than in the dry heat produced by the HPS lamps, you can ensure a faster development and growth in the first week(s) by allowing the air moisture to rise. The easiest way to achieve



This Orange Bud is obviously ripe, as is clearly visible from the coloured hairs.

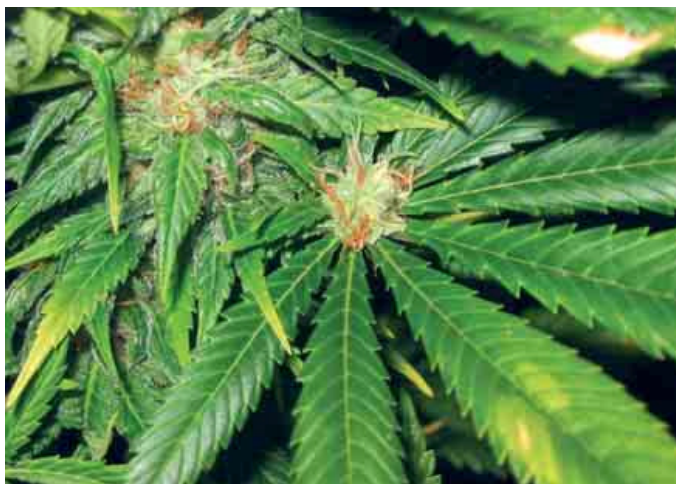
this without buying an air humidifier is to attach a dimmer switch to your ventilator. With a dimmer you can vary the speed of the air extraction. Connecting a dimmer is handy because with it you can better influence the climate. What's more, a ventilator without a dimmer always operates at full speed and this is not always needed, and not only wastes electricity but also creates more noise than is strictly necessary. It is not actually the ventilator itself that creates the noise but the stream of air that comes out of it. So you are better off having a dimmer during the first weeks; it will allow the pump to not only operate more softly, it will suck away less moist air, thereby keeping the air moisture content higher and allowing your seedlings to develop more quickly.

As soon as the plants become bigger you can afford to let the pump do a bit more work, as the plants are producing ever greater quantities of moisture, and you need to make sure that the humidity does not start to creep up too high once the formation of the buds is well and truly underway, around the fourth week of blossoming. Too high a humidity can lead to the rock hard buds beginning to develop mould during their last few weeks of growth. When the humidity is too high there is a greater chance of damp getting

inside the bud structure, which continues to grow around it, trapping the moisture. This trapped moisture can incubate moulds. Varieties of weed that develop especially hard buds have a greater chance

If you are growing hydroponically then don't cease feeding until the last five days, as the yellowing process will happen very quickly if you are growing in water only

of developing mould than buds with a more airy structure, thanks to the latter not trapping moisture in them so easily. Once you have discovered mould in a bud then it is as good as lost, since the mould has been active inside before it became visible on the outside of the bud. When you have a lovely-developed bud and then a strange yellow-coloured leaf sticks out the middle of it - even though you have definitely been giving her enough nutrients - then you are best off pulling it softly out. If the leaf comes free easily, then the bud



Sometimes you will also encounter freaks with abnormalities among your plants, such as this bud that is blossoming away on a large leaf

is infected. So make sure that you have a good ventilator in action during the last weeks. It is an investment when you are just starting out, but is a 'must' if you want to make sure that your harvest comes off without a hitch. Not only does the ventilator ensure that the warm, damp air is removed, but it also makes sure that fresh, CO₂-rich air is sucked into the space in which your plants are hard at work. They will need this fresh air to keep growing and blooming at an optimum rate. Try and make sure that during the last few weeks of blooming the air moisture is kept below 50%.

Of course, you can grow in a cupboard without a ventilator by keeping the door ajar, but then will not get optimal results. If you are going to do something, you are better off making sure you do it well. The dimmer in combination with the ventilator will enable you to master the environment better, and an outstanding climate increases your yield and the quality of your eventual harvest.

Keeping the noise down

For those of you who have your growing space set up in the vicinity of a bedroom, then there can be a problem of complaints about the noise made by the ventilator.

There are various ways of reducing the noise. First and foremost you have the aforementioned dimmer, since a ventilator that is not running at full speed makes less noise. So try and run yours at about 75-

80%. That is why it is always best to go for a ventilator with too great a capacity rather than too little. A large ventilator running at half speed makes less noise than a small ventilator running flat out. If this does not help sufficiently, then you can have the ventilator built into an insulated box. Just attaching a length of hose to the ventilator already reduces the sound considerably because the sound is not immediately dispersed but runs first along the hose, by which it is reduced in volume. Should these efforts still not give you the

results you wish, then you can fit a sound muffler to your ventilator. This looks something like a carbon filter; a metal tube that you fix to your ventilator so that the sound produced must first pass through the tube, where it is reduced. Then simply fit a normal hose to the muffler and you'll find the noise has largely been filtered out.

The last weeks of blooming

The majority of the bud development will have happened by the 6th week if we are growing a medium long-blooming variety. In the last two weeks the buds will be mostly ripening and not growing further in size to any great extent. The buds that were chock full of bone-white hairs will now begin to turn slowly brown. Depending on which variety you are using and the climate of the space, this ripening can take a variable amount of time to finish. Once some 80% of the little hairs have turned brown then it is time for digging those clippers out the cupboard and preparing for harvest.

Of course you can also influence the sort of high you get from your cannabis by harvesting your buds a little earlier or later. The longer you wait to harvest, the 'stonier' the cannabis will be; if you harvest it a little earlier then you will get

more of a 'head high'. So you can make your mind up according to your own personal preference. Since we usually aim for some sort of golden 'middle way,' we will go for harvest when 80% of the hairs are brown. Do not forget that sometimes white hairs can turn brown by influencing the climate or messing with the humidity. It does not automatically mean that the plant is sure to ripen once you get a few brown hairs. A bud that has died off or that has been infected by mould will also develop brown hairs. Harvesting is not an exact science but in short, if you have a mostly brown hairs and a few of the lowest buds still have white hairs, you can safely go ahead and start chopping. You have to look at the plant as a whole when you are doing your 80% calculations. In order to experience the varieties of high you can achieve, you might want to harvest at staged intervals, and once they are dried take each sample for a test smoke.

As the end approaches nearer you will find that one variety holds on to its nutrients more than the other. So for example a K2 will hold on to its nutrients longer, which means you have to stop feeding it in the last week and a half. The plants will remain a crisp green despite doing this, the hairs will continue to darken in colour, and the buds will slowly ripen, taking on a marvellous appearance with their wonderful layer of THC sprinkled all over them. Since there is still a lot of nutrition left over in the medium (exactly how much depends on the medium you are using) and the leaves also contain considerable nutrients within them, we stop feeding them for the last 1.5-2 weeks of bloom. If you are growing hydroponically then don't cease feeding until the last five days, as the yellowing process will happen very quickly if you are growing in water only. In soil-filled pots, or on coco and suchlike there is still quite a lot of nutrient left in that needs to be used up. What happens when you stop feeding your plants is that they will take up and use all remaining available nutrients from the pots or medium, and once this has been done they will suck their leaves dry to get the nutrients out of these too. In other words, even after stopping with feeding the plant still has more than enough nutrients. You can still apply bloom stimulator given that this is not a nutrient substance. The leaves will slowly turn yellow and this is a sign that there is very little nutrient remaining in your buds by harvest time. In this way you also save a few weeks or days of nutrient expenses. Yellowing is therefore a good thing because having excess nutrients in them will add nothing to your buds. Eventually you will be able to remove some of the larger leaves from your plants in the last week or few days before the harvest, which will save you some trimming and will also allow more light down to the lowest buds and give them a better chance of adding some last minute weight before coming under the shears. This done, it leaves little else to do in the last few weeks but to savour the results of the source of your excitement...

Next time, more about the harvest - leaving you time to get your shears sharpened!



This series was made in co-operation with Plagron; visit them at www.plagron.nl

Growing for Dummies Part 10

Harvest time!

By Bart B.

The end is approaching, and hopefully I have helped contribute to your gardens being filled with many wonderfully green babes. In any case, all of you now have the ability to grow top quality cannabis, even if as a beginner your first time will contain some mistakes which will inevitably impact the size and to some extent the quality of your harvest. If things have gone really tits up along the way, learn from your mistake(s) and try to eliminate them next time. At the end of the day it is usually stupid

Which one you use depends largely on the number of plants you have and the size of them. The most common method and the one that gets my nod is "wet" trimming the buds. We proceed by immediately trimming the plants one by one the moment they finish ripening. We take a ripened plant and cut off the branches one by one and remove the leaves around the buds. This leafage contains a lot of THC and so we keep this to one side so that later we can make water hash or 'skuff' out of it. In

shoot up in size quite a bit in this last week, and ripen more fully.

By trimming the plants wet you can trim much shorter and neater than you can with dried buds, and this will present the buds to their best. The first time does take a bit of getting used to as you figure out the best way to trim them. But after ten minutes or so you will have usually found the technique that is quickest and at the same time neatest. In itself, trimming is not hard,

After just a short while trimming you will get a huge quantity of THC sticking all over your sheers. If you don't have some sort of product with you that removes the sticky hairs it can be pretty difficult to get the sheers clean again. A poor set will quickly break if the hinge is impeded by too much THC. So if you're working with cheap sheers, then it is especially important to have a spare to hand so you can switch over as soon as a problem with the first pair rears its head.

Dry trimming

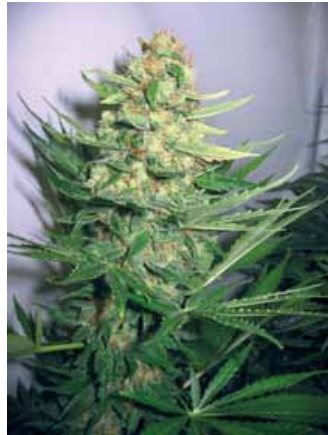
A second method you can use is trimming the plants dry. In this technique, you first let the plants dry out before actually getting down to trimming them. The branches are snapped off and hung or placed in the drying room. Drying the plants out first in this way does take a bit longer than when your buds have been trimmed wet. It's a method used mainly when there is a larger number of plants and a shortage of time. Dried buds are less easy to trim and end up less neat. There is a relatively larger loss of THC since this is more easily shaken off by movement when dry. This is very relative; there is still a huge amount present on both the buds and plant material. The drier this plant material, the easier it shakes free. This method is also mainly used on outdoor-grown cannabis. The enormous outdoor plants are hung upside down in a drying space and then systematically harvested. When growing a large number of smaller plants indoors this method – hanging whole plants upside down – is also used. There is no bad way of trimming, it just depends on the growing system which method suits you more than another.

Trimming space

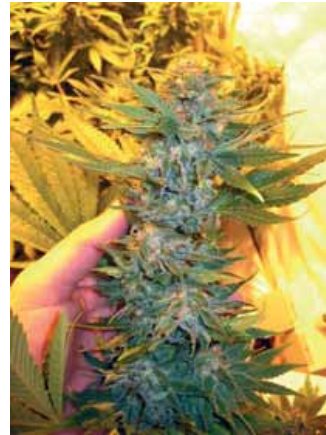
Try and get a room that is suitably ventilated when you're choosing where to harvest. If your growing space is big enough, you're best off doing it in here while you run the ventilator continuously. If you have to do it in a different room you will find that the plants give off quite a bit of odour, and you might find keeping the door shut and only opening it to go get the next plant for trimming helps. Try to make sure that whatever you do, don't annoy the neighbours. Even though the smell of fresh cannabis smells divine to smokers, many civilians think the strong stench revolting. Using a small vacuum pump fitted with a carbon filter will help keep the smell down during trimming, or else do it in a place where there is no danger of causing a nuisance. Mostly you'll find that you pretty soon don't notice the penetrating cannabis smell yourself because you get used to it. This underestimation of just how big an impact you're making can end in tears.



This lady is ready, judging from the brown hairs



More than 80% of her hairs is brown, this lady is more than ready too



Orange Bud ready for the chop

mistakes that are made, so keep getting your hands on as much information as you can; information is power!

If everything has gone pretty smoothly for the last 8-10 weeks of blooming, which most varieties need to properly finish their blossoming, so it's now harvest time. As long as you have not managed to give an overdose of nutrients, then some cracking good buds should be visible on all your plants. Overdoing things can cause damage, and it is better to give too little than too much. The closer and closer you get to the end of the blooming period, the more you can reduce the strength of your feed water, and even stop feeding completely for the last week(s). It can't do any damage to your crop if the plants turn a nice yellow, in fact it is a good sign. The plants are sucking out every last drop of nutrient from their own leaves, which means that there will be less nutrient residue left in your buds. The result is a nicer smoke.

Trimming "wet"

There are various methods by which you can harvest your beloved plants.

order to improve the eventual quality of your hash, try to avoid mixing in large leaves with little or no THC crystals visible on them with the leaf trim. The large cover leaves can actually be

but the best technique will give you the loveliest end results. Women's hands are more suitable for trimming since they are slimmer and can work with more refinement.

One advantage of removing the large leaves a little earlier is that the lower-most buds on your plant will be far smaller than the top buds thanks to having been deprived of light. With the sudden increase in available light these can shoot up in size quite a bit in this last week, and ripen more fully.

removed 2-3 days before you start the actual trimming, or even earlier. By doing this you will make the trimming a bit easier and also quicker, since you would only have to remove the big leaves during the trimming anyway. You can decide for yourself if you want to do this or not.

One advantage of removing the large leaves a little earlier, like a week before the harvest, is that the lower-most buds on your plant will be far smaller than the top buds thanks to having been deprived of light. With the sudden increase in available light these can

Make sure too that you always have some reserve sheers handy when you start the job for real. There are various types of trimming sheers on the market, and I would say it's best to try out several of them since everyone has their own preferences. Once you have decided which your favourite is then in future trimming sessions you can start straight away with this model. Cheap sheers and scissors that are not sharp enough or are soon knackered are less suitable if you want to get really stuck in. These just cause more trouble than they are worth in the long run – as well as making the trimming longer.



Some of the Plagron fertilizers I used for this series

Drying room

It is also important to bring the harvest to a good conclusion because after so many months of work it would be a crying shame to watch your buds turn mouldy. The ideal place in which to leave your buds to dry is in a cool and dark room kept somewhere between 15-22 degrees. It is not important to ensure that the room is very warm because the active ingredients need a bit of time to mature properly so that you get a decent effect when you smoke the cannabis. It is better to dry the buds slowly over two weeks then stick them in a warm room to get them into a smokeable condition as soon as possible. This certainly does not improve the quality. Trying to quickly dry out your buds by sticking them in the microwave or in an oven because you happen to be temporarily out of smoke makes no sense at all. Not only will it taste very sharp and bad, you only get a weak high that's not particularly enjoyable. Cannabis needs

When you lay out your buds to dry in their room make sure that they have a good circulation of air under and over them. Laying them down on newspaper or something else that is not aerated is not advisable. There are special drying racks you can buy and I recommend them highly for drying your cannabis on. These are racks with tensioned threads across them thanks to which the buds get plenty of air from underneath. When you just stick your buds on a piece of cardboard then the side of the bud that comes into contact with the cardboard loses its moisture with more difficulty, which increases the chances of it developing mould considerably. You are better off laying harvested buds next to each other rather than piling them on top of each other. If mould does take hold it will spread less easily from bud to bud. A good 75% of the harvested bud is made up of water that has to be removed. When this moisture has trouble being removed is when we get the risk of mould. If you start with 500 grams of wet buds then you will end up about 125 grams of dry smokeables.

The leafage contains a lot of THC and so we keep this to one side so that later we can make water hash or 'skuff' out of it

time to come to its full strength, shall we say. It is not just because it is dry that it is ready for consumption.

Too low a temperature can also mean that the buds spend too long damp, and again this increases your mould risk. There are always mould spores floating

in the air, but only when you create the poor conditions they like do they get a foothold on your buds. Insufficient ventilation thanks to putting the harvested buds in too small or to closed off a space, or by leaving them to dry on a hard surface rather than on an aerated surface is one of the most common causes of mould. The fear of mould is pretty unwarranted so long as you bear these factors in mind.

Ripening

There is a big difference between ripening and drying cannabis. After just one week the small buds are usually dry, while the medium to large buds will need two weeks. If you have some really huge buggers in your garden, they could use a few more days than that even. You can always choose whether to dry any enormous buds as a whole or to break them up first, because the structure of huge buds is made up of smaller ones that have grown together. Smaller buds dry out quicker so if time is an important factor you're better off breaking them up.

The trick to telling whether your cannabis is indeed good and dry is to take a large bud and try to break its twig. When the twig snaps easily the bud is good and dry. Don't try and convince yourself they're ready by taking a small bud twig and breaking that. *All* your buds need to be properly dry before you can ripen them. The dried buds will be nicely smokeable after two weeks. They are not yet at their absolute peak, but they will do the business. Finally it is time to test them out, in the knowledge that they will only get better in the future.

Once your buds are well and truly dry we can take care of the storage. In order to keep the quality of your cannabis high you will need to store it in a cool, dark space. So just put it in a light-proof plastic container or glass beaker in a dark place. Light destroys THC. If a few of your buds aren't dry enough and you store them with others, then they will all end up damp again, even the ones that were actually dry.

Now you have to leave the buds where they are for another two weeks to ripen, which will put us a month

on from the harvest. Thanks to the ripening process the buds will taste better, and the high will be better. As I said, cannabis needs time. After this month the taste will be fairly well developed, although some varieties do need a little more time than others in order to become a top smoke. Naturally, the buds will be good, but they can still be just a tad better...

So all's well that ends well, now we're left with a large volume of leaf trim over, dripping with THC, with which we have plans to make something wonderful out of. So not only do we have a good supply of smoking material but we can yet make a good water hash or hash oil, try out cannabis recipes when we cook, and more...

But more about that in the next issue, in the very last edition of Growing for Dummies...



Plagron's Green Sensation, Top Activator



Growing for Dummies *final episode*

Two harvests from one grow

So now you have finally – after two long months of blooming and a period of pre-growth – got some cannabis buds raised by your own fair hands. But the fun does not stop there. As well as cannabis we can also extract some skuff or water hash from the harvested plants. Both principles are dead easy and efficient. In short, the harvesting is not quite over yet...

All the buds of the plants should by now be neatly stored for drying, and the very smallest buds should even be dry enough to take for a test smoke. Two weeks further down the line and all your buds will feel or look dry on the outside, but inside they are for the most part not yet fully dry. The larger buds will need a little while longer. Let them all dry out slowly in a dark room that is large enough or is equipped with a ventilator, so that the moisture released by the buds can escape.

Once the small twigs of the buds snap cleanly – including those of the largest buds – we can gather them all up ready for leaving to ripen so that the taste and smell of the cannabis can fully develop. Don't worry if the cannabis still smells a bit green during the first couple of weeks; some varieties do need a little more time to develop the typical, trademark smell of cannabis.

Skuff

In the meantime we have also let the considerable volume of leaf waste and trimmings also dry out. Depending on which variety you have just grown and the number of leaves this variety develops you should end up with about the same amount of dried leaf material as the weight of buds produced. Around 500 grams dry cannabis from your plants should result in about 500 grams of dry leaf, in other words. Of course, this will be a whole lot more with the more leafy varieties, and by the same logic if you're growing a variety that produces little leaf cover around the buds, you'll get less. We only gather up the leaves that obviously have THC on them, generally the leaves surrounding the THC-rich buds. We also use large leaves that have THC on them. All other leaves that have no THC on them can be separated out. This usually occurs during the trimming of the buds, when we first take off the large leaves and then trim nice and neatly around the buds. In this way you should produce two piles of leaves during the trimming. In one pile you put the large leaves with no THC while the other pile is made of the THC-rich leaves. It makes little sense to just mix the two types of leaves in together, because by doing so you will only reduce the quality of your hash. There will be much more unnecessary contamination by the not THC-rich leaves in your hash.



Bubbleator;; this is the sieving bag which holds the trim waste

It is very important in any case to let your leaf trim dry fully. Usually this takes longer than the buds themselves take to dry. Just 'dry' is not good enough; the leaf material must be so dry that when you take it between your thumb and finger and rub it, it just crumbles and falls apart. The drier the better and the greater the yield of hash you can expect from your leaf material. The THC crystals just come away from the leaf material much easier than when the leaves have just been lightly dried. This is when the leaf material looks pretty dried out, but it does not crumble. In this state, the leaf material gives up little to no THC crystals.

Our goal is to get as many THC crystals as possible and clump them together and make ourselves a nice lump of hash. The gold-yellow powder that is on the buds has a very different effect when you

10% yield is a fair rule of thumb when using well-dried leaf waste.

Naturally, it also applies here that the better the quality of your leaf material, the more crystals you will find on it, and the bigger your yield will be. So if you've grown a real white variety or another variety with a very high THC production, then logically you will get a larger yield of hash out of it.

Normally you will achieve more than a 10% yield when you are growing indoor cannabis; some growers have been known to achieve yields of up to 16% or more when using good leaves. When growing outdoors there will be much less than that possible, especially with poor autumn weather, which reduces the level of THC your leaves develop and so reduce the yield well below 10%. That is why it is important not to put yourself under

Making water hash is somewhat more labour-intensive than simple hash making, but the quality that you get with it is something special.

smoke it pure and some smokers prefer the sweet high and effects of hash to the more stoned effect of smoking cannabis buds. Each to his own.

When you roll a joint with well-dried cannabis buds then you will frequently notice that your fingers become sticky with a sort of gold-yellow dust. These crystals are what I have been talking about. The nice thing about making hash is that in addition to your regular harvest cannabis buds, you also get a reasonably large quantity of hash from the same harvest. So supposing you have a harvest of 500 grams of bud, and have about 600 grams of dry leaf material left over, you can count on perhaps 60 grams of hash out of this. This

pressure, since there is no point in mixing 400 grams of THC-rich leaf material with 200 grams of large leaves in the vain hope that this will produce 600 grams of good leaf material. You still have just 400 grams of good leaf material. By mixing I mean that instead of just using the neatly trimmed THC-rich leaves you add in the large THC-poor leaves.

Of course it is lovely that whether you get a good or a bad harvest of buds you can still bank on scoring yourself a nice lump of hash. This is always handy when you have had a poor harvest of buds that are hardly worth the effort, as can happen with outdoor growing. Then you can just make hash of the whole damn lot.

Polination

The principle of making hash is fairly easy and works thanks to the breaking loose of THC crystals. There are various ways in which this can be achieved. You can get a sieve and spread your leaf material out on it and then shake or let the sieve be vibrated. The sieve you use must be fine enough to hold back all the leaf material and let only the crystals through. There are also specialised hash making devices into which you put a small amount of leaf material and then shake it by hand. The newest grinders work according to the same principle as hash making. Many grinders now incorporate a small sieve that allows you to collect the THC crystals in a separate compartment, whilst the cannabis itself loses little of its power. You will be amazed at the amount of hash powder you collect or actually lose when you use a normal grinder or crumble your buds by hand.

But if you want to process a reasonably large amount of leaf material then you are going to need a polinator. A polinator is a machine that uses the rotation of a drum with a sieve around it to break loose the crystals. You put the leaf material into the drum and a motor turns it around. The leaf material is shook up and down and thrown around and it is this action that shakes the THC crystals free from the leaf material. After a bit of time – 30-40 minutes is usually enough – we can stop the polinator and scrape the hash powder into a pile, and if we are going to press this powder straight away (prior to storing it for at least a year for ripening) to get hash. This pressed powder is called skuff.

The reason why we press the powder is because this improves the taste and smell. It is also easier to make a joint out of, and more easily transportable. A pressed piece of hash is easier to share with someone than a pile of sticky powder. In any case, the better the quality of the hash the less powerful the press has to be. With poor quality hash you need a press that can exert a greater deal of force because the crystals have so much contaminating vegetable matter mixed in with them they have trouble sticking to each other.

As well as the material you use having to be very dry, it is also useful to give your leaf material a night in the freezer, especially if you are planning to use the polinator. The extreme cold makes the THC crystals break loose more easily. In the best scenario you would actually be able to make your hash inside a walk-in freezer or something else that allows you to keep a constant cold temperature. This would give you the very best product, but of course not many of us have such facilities to hand. But if you know someone who can make such facilities available to you, then it is well worth going to the trouble of using them.

It is always a marvel to watch how much hash powder can be extracted from even

a small amount of leaf material. It is not necessary to pollinate your buds given the quality of the leaf material, but of course if you are a real hash aficionado and don't fancy smoking your buds then go ahead and pollinate your whole crop. Make sure than you first break up the buds though, so that the crystals from every corner of them can be shook loose. This will dramatically increase your hash yield. Also ensure that no twigs (or as few as possible) are left in your buds because these can damage the sieve. A piece of sieve does cost quite a bit of money, so it is more than an annoyance to wreck it.

Although a polinator machine or suchlike does cost about 300-500 euros, it is an investment that will immediately pay itself off in the first harvest and hash production. It will also work well for many years without problem. The only pre-requisite should you be thinking of equipping yourself with such a gizmo is that you need a nice amount of leaf material every few months with which to work with. There is very little sense in getting your own polinator if you only have a very small amount of leaf waste and the polinator spends more time in the cupboard than in action.

Water hash

The newest method of hash making in recent years is to make a 'water hash'. This works according to the same principles as pollination, but uses ice cold water and churning to separate the crystals and leaf material. Making water hash is somewhat more labour-intensive than simple hash making, but the quality that you get with it is something special.

To begin with, you cannot just toss it in a drum, and so you will need a bit more leaf material to work with. We need a bucket of about 20 litres capacity into which we will be plunging the special sieve bag. A water hash set consists of two or more bags into which a sieve is sewn. Each sieve has different dimensions so that one sieve lets the crystals through and the other sieve catches the crystals and so does not let them through. With many sieve bags the crystals of different sizes are caught separately. In place of one big pile of crystals in one bag, you end up with different quantities in each bag. Because the crystals in each bag differ between them, so the effects and taste of the eventual water hash differ.

So the bags are placed in the bucket; lower-most is the bag that will catch the crystals and only let water through. Above that come all the sieve bags that will hold onto some leaf material and a certain size of crystal.

We first fill the bucket with ice-cold water (in effect, around 3 degrees). The colder the better since then the crystals will break loose more easily. By putting a (food) mixer in the bucket the leaf material is beaten and this action loosens the crystals. Do not use the mixer at full speed because the idea is not to reduce the leaf material to a pulp. This will only succeed in creating a poorer quality end product. I'll advise you once again to let your leaf material spend a night in the freezer before you begin.



If the water is of dark brown colour, we can be assured of lots of crystals in the sieving bag



This is the end result of the Ice-o-lator

If the temperature is not low enough in the bucket you can add ice cubes. This is unless you have a water cooler attachment for your water taps, which will generally give you water that is cold enough without having to add extra ice cubes.

What you can also do is an hour before you begin to make your water hash, stick a couple of 1-2 litre bottles of water into your freezer compartment. This water will be perfectly ice cold by the time you need

Certainly do not use a beating attachment with sharp edges – I'll repeat: the idea is not to make marijuana leaf smoothies. The simple action of gentle agitation combined with ice-cold water will be enough to break the THC crystals free. It is pretty easy to see whether your leaf material is delivering or not. When the water turns a goldy-brown-yellow colour then you can be assured that it contains a decent amount of crystals in it.

It is very important in any case to let your leaf trim dry fully. Usually this takes longer than the buds themselves take to dry

it, and perfect for making a quality water hash with. Watch out that you don't leave them in the freezer too long otherwise their contents will freeze, which is no good to you. Or I suppose you can cut open the (PET) bottles and use the frozen contents instead.

The simplest way to make water hash without too much hassle is to set your mixer on a timer so that it will run for 20 minutes, then switch itself off for 5 minutes before doing another 20 minute cycle. Do this for about an hour and a half. It is important to make sure that your mixer is well and truly fixed in place so that it cannot break free and wreck the whole operation (and bags). If you're happy this is OK, then there's no need to stand and watch the mixer, switching it on and off.

Since you use water extraction to make the hash there is far less contamination in your final product, which boosts the quality of the hash and its purity is increased. Water hash is also very different in its effect and power than ordinary hash. It's just something that you have to try for yourself in order to appreciate. Water hash can even be too powerful for inexperienced smokers.

Not all cannabis varieties are equally suitable for making water hash from; some varieties lose some of their taste. That is why it is better to act in the same way as a wine connoisseur, so to speak, and use both methods when you are trying a new variety so that you can determine which the best method is to make hash from with this particular variety. Making water hash

is an experience in itself, and that moment when you first haul the final bag out of the bucket remains a magical one, as you shake it back and forth before opening it and there are the yellow crystals lying there in a pile. It is also true when making water hash that the drier the leaf material the better the harvest of crystals you can hope for. On the other hand, the quality will be slightly lower. The advantage of making water hash is that you can get to work even with fresh, un-dried leaf material. The yield when you use fresh leaf trim is quite a bit lower, but what you get is of very good quality because you get less leaf contamination than if you use dried leaf.

Bubbleator

Man is essentially a creature of leisure, and one of the drawbacks of the whole 'working with ice' routine, if I can call it that, is the difficulty of securing the mixer safely. So you can't just suddenly decide 'oh, I think I want to make some water hash', but must always first find yourself a suitable mixer that will operate safely in this context. This can discourage some growers meanwhile from even trying make this excellent variety of hash.

The company that makes the Polinator has recently released the Bubbleator on the market, which is designed to make water hash quickly. The Bubbleator is in effect a mixer and looks like a small washing machine. You just bung your leaf waste into one huge sieve bag that you then put inside the Bubbleator, which you then fill up with ice cold water, and by just cranking a handle you can churn the mix for 15 minutes. The advantage of the system is that you don't have to search for a suitable domestic mixer and everything is done with much less fuss and mess. You just let the Bubbleator run itself empty in your sieve bags and you're left over with the desired crystal pile. I reckon the Bubbleator will convince many new growers to give making water hash a whirl by cutting out the annoying Hunt the Mixer game. You can buy the Bubbleator separately or in a deal that includes ice-o-lator bags.

The real hash-lovers leave their hash at least a year to ripen before they even think of consuming it. It is certainly worth you stashing at least a part of your harvest away. If you do this every year then you are soon going to build up a supply of fantastic quality hash.

I hope that you have been able to check out all the episodes of Growing for Dummies (check our website, www.softsecrets.nl for PDF files of any you missed), and to understand them. If this is the case and you have followed the simple basic instructions from the series, then by now you must be in the position of gathering in your own decent harvest.

Congratulations! You are no longer a Dummie, but a Soft Secrets-certified home grower!

The end



Blueberry

From seed to flower

By Bart B.
Grower: Aja (from the US)

I will be explaining the process from germinating Dutch Passion Blueberry seeds through to harvesting as I go along. I wanted to share the experience in this way so that those new to indoor cultivating can get a feel for growing hydro and learn about what is required to grow healthy, happy plants.

Germination

I ordered my seeds through Seeds Direct. I mailed an International Money Order and had the seeds sent to a post box address. I received them about two weeks later. The packaging was very clever and the seeds were actually a little hard to find initially. Very cool!

My method for germination is pretty basic. I use RapidRooter cubes that come with their own two-piece tray. I soak each RR cube in Olivia's Cloning Solution 1/2 strength. The pH of the mixture is adjusted to 6.0. After the cubes have soaked for an hour I squeezed all of the excess solution out and placed a seed point end down into the pre-made hole in each of the cubes. Next I pinched a small piece off of one of the extra cubes and placed it gently on top of the newly planted seed, forming a cover. The seeds are about 1/8" from the surface. I then misted the entire tray with cloning solution and covered it with Siran Wrap, leaving one end slightly open for fresh air. After wrapping the tray I set it on top of my monitor, which keeps the temperature around 26 C. I have found that keeping the seeds warm and refraining from over-watering are the best ways to insure successful seedlings. All of the seeds came up in 3 days...

Week 1 Seedlings

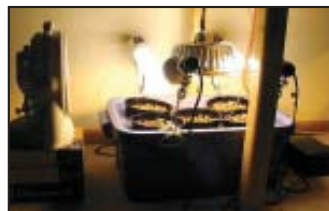


Week 1 - seedlings

Okay, so all my little girls are aboveground by day seven. The germination process is always stressful on baby plants and beginner farmers. The tendency seems to be kill 'em with kindness... I recall checking for progress easily 50 times a day during my first crop. Now, I just peek in on the trays a few times a day and add a tiny bit of water if the cubes become too dry. When the first seedlings break the surface I remove the plastic wrap and add a few Compact Fluoros about a foot away from the tops. I try to keep the temperature about 22 - 24 C at this time, to prevent shock. Water is added once a day if needed. I also mist the seedlings with

straight pH adjusted water several times a day to keep the humidity up. By day seven I have added a small fan, set on the lowest setting. My goal is to apply just enough air to make the plants sway a bit. Kinda makes them dance... This particular strain has very beefy stems and branches but it never hurts to exercise them in their first weeks anyway. I am feeding the babies with the cloning solution mixture and will continue until I transplant them in about a week's time.

Week 2 Seedlings



Week 2 - seedlings

All the pesky rumours about BB's be damned, these little gals are still trucking right along. I transplant at week two. The seedlings are all showing root systems that travel the length and circumference of the cubes. I go straight to the big net cups at this point. I put about an inch or so of Hydroton growrocks in the bottom and then carefully place the plant, cube and all, into the pot and fill in around it. These root cubes hold together well. I have not noticed any pH fluctuations or water contamination with their use.

Week 3 Seedlings



Week 3 - seedlings

All's well! Plants look very good and healthy. Still maintaining the same nutrients. Lowered the pH down to 5.2 - 5.5. Lots of bushy growth. These Indica dominant plants are much more compact than the Sativas that I am familiar with. All seem to be growing uniformly except for 'Rocket' who will probably be culled before the DWC transplant. The roots are getting long and well developed. I will have to put these girls in their own tubs

Requirement details:

Partitioned closet 3'(92cm) wide x 2'(60cm) deep x 7' (2.14m) high
600 watt HPS w/Hortilux bulb air-cooled hood
70 watt HPS (Regent Security light that I converted to remote ballast)
5 x 45 watt Compact Fluoros (vegetative phase)
5 x three gallon tubs with airstones (19 liter) (vegetative phase)
2 x 465cfm fans for ventilation
4 x Dual Outlet Air pumps /1"(2.54cm) air stones
4 x five gallon bubbling buckets with controller bucket

Seeds:

Dutch Passion Original Blueberry, feminised
Nutrients: General Hydroponics Flora Series



Week 3 - roots

soon or risk root entanglement. About 6"(15cm) tall at this point.

Week 4 Vegetative phase



Week 4 - vegging



Week 4 - vegging

So, I transplanted the girls into their own individual tubs. The reason I moved the BB's into the rubbermaid tubs instead of the buckets at this point is easy - I still have flowering plants in my main grow room. I misjudged my harvest time and ended up with plants ready to go DWC but no room.

These little Rubbermaid tubs are perfect for this purpose. Just trace out a circle on the lid, cut it out, add a hole for your airline and you're there. I am using a Rena 300 that supplies fresh air through a 4-way valve that powers the airstones. Works very well.

The clamps on the fluoros allow me to attach the lights to the net pots, which seem to work well for now. I boosted my nutrients to around 400 ppm and the plants went nuts... loved it. The pH is still at 5.2 - 5.5. Some of the girls are pushing 12"(31cm) or more.

Week 5 Vegetative



Week 5 - vegging

I have moved 'Rocket', who is now roughly twice as tall as the others to her own area. Don't have the heart to kill such a beautiful plant. Maybe grab some clones from her and try her out as a mother. The plants are getting really bushy - I will have to come up with a better solution for the lights soon.



Week 5 - vegging

Week 1 Flowering



Week 1 - flower

Man the following 2 weeks sucked. Suddenly my plants started showing really bad nutrient burn. I changed the water and toned down the nutrients but still saw little change. I also started getting MG deficiency symptoms. Must be wrong 'cause I know that there is plenty, must be my pH. My pH has been fluctuating a lot lately. I know that GH nutrients in RO water should give me a pH of about 6.0 - 6.3. Since the water starts out at 7.1 - 7.3, I remember that if you add the nutrients to your existing water your pH will drop accordingly. That



Flowering, day 31



Flowering, day 31



Flowering, day 31

must be why pH rises as the plants eat and drops when the plants aren't...? I have fixed the pH and the plants seem to finally be recovering, albeit a bit slowly. When the plants had finally recovered I moved them into the buckets. Unfortunately the fans were on ahead of time and the bucket water temperature had dropped to barely 11C! Talk about Stress! I have never seen plants droop as much as these girls did. I placed a heater near the door and waited patiently for

Don't have the heart to kill such a beautiful plant. Maybe grab some clones from her and try her out as a mother.

three days not knowing if the plants would live or die. At last- the plants seem to have recovered and are growing like crazy under the HPS and the buckets.

Week 2 Flowering

The girls are growing amazingly fast. I rotate the plants three times a day to make sure each side of the plants gets the sweet spot. The fan leaves are massive so I make sure to tuck them in when they cover up a bud spot. I am very impressed with the amount of bud sites on each plant. I have heard that this strain is a poor producer, but seeing is believing. The tallest plant is over 36"(92cm) high and is making me a bit worried. My grow room will easily handle a four footer, but anything taller and I may be doing some tying down. Very, very happy plants. All of the problems from the last weeks of vegetation seemed to disappear when I



Hydro supplies



Flowering, day 31

into a clean container and put the wand in the solution. Adjust the knob until the readings reflect the pH of the calibration fluid that you are using. PPM calibration is the same process with different calibration solution.

I calibrate about once a week. You must store the wand tip in a special solution when its not being used to maintain its accuracy. This solution is available at most hydro stores.

Any grow related questions? Contact me at barb@ganja.com

Continued next issue...

By day seven I have added a small fan set on the lowest setting. My goal is to apply just enough air to make the plants sway a bit. Kinda makes them dance.

went 12/12. Nutrients are 0/8/16 (Lucas's Formula) That translates to 8ml of micro and 16ml of Bloom per gallon of RO water. I still add 1/4 teaspoon of Epsom Salts to each gallon(3.7 L). The plants are drinking about a gallon of water a day between them. This water is replaced daily with plain RO water that has had the pH adjusted.

Week 3 Water Change

I do my water changes every two weeks. My tap water is very hard, so I use RO water that I buy locally for about \$.30 per gallon. I can get this water locally so I usually make several trips to different locations. Might look a bit suspicious if I buy 25 gallons(95L) of water at one time from the same place every two weeks... First I add the 20 gallons of RO water to the tub. Next I measure out the nutrients. I add 160ml of Micro and mix thoroughly. Next I add 320ml of Bloom and mix. Next comes the Epsom Salts which works out to 5 teaspoons. The pH is usually around 6.0 or so. I let the water sit for most of the day to adjust to the temperature of the room. The plants are really fussy about temperature changes so I try to make it as painless as possible. A few hours before the change I check the

individual adjustments as needed. The 3-way meter is my best friend. Expensive, but it has saved my butt more than once. I have used the aquarium type test kits and I just don't trust my eyesight that well. Besides, the meter is instant and the results are accurate. If you use a meter you will have to calibrate it. This is very easy, just pour a capful of calibration fluid

MJ = Marijuana
DWC = Deepwater culture, the name of the hydro system used
PPM = Part Per Milli
MG = Magnesium
N = Nitrogen
GH = General Hydroponics
Phenos or phenotypes = The different traits that occur in the same strains are called phenos. You can have sativa or indicaphenos in a strain. The best a plant is breded the less phenos will occur.
SCROG = This is just a way of growing where the plants is topped and the branches are spread out to increase yield. Used when one has only a couple of plants.
SOG= This is the opposite of SCROG, this is just letting the plants grow untopped in a large numbers with very little veg.
FIM = This is an advanced topping method where one pinces 40% away from the headshoot. Still leaving 60% of the shoot on the plants that will become forming between 2-12 extra branches instead of the normal 2 when one normally tops a plant. This doesn't always work and it takes some practice to do it right. Mostly you only get 3-5. With some experience 8 can be achieved.
POTW =picture of the week



Blueberry

From seed to flower, *part 2*

By Bart B.
Grower: Aja

Week 3 Flowering

This is my favourite part, hey-hey. The girls are starting to look like ladies... I took these pictures today, right after lights off. The tallest plant is playing chicken with the HPS, so I had to raise the lamp a bit. I took some close ups of some of the buds. I can't wait to watch these girls develop.

I noticed that they were cruising through the nutrients pretty fast so I mixed up some lunch for them and they seem to be enjoying it. Unlike my last crop these plants really thrive on higher doses of nutrients during flowering. I have noticed two separate phenos so far. Two of the plants are very compact and bushy with tight buds forming while the other two are taller with more pronounced colas and stalk-like flower sites, but the buds are hairier and seem less dense. My lighting and growing conditions are pretty uniform, so I have to assume that the differences are genetic.

I took clones from all four so I will keep an eye on these different characteristics and select the best clone, based on performance and it's buzz, for a mother. Clones have many advantages, a huge one is that they grow more uniformly. This is important because it allows you to keep the light as close to the plants as possible. This crop from seeds demonstrates this problem; the plant closest to the light is only 6"(15cm) away, while the farthest is almost 18"(46cm). I suppose I could tie it down, but the others are catching up and at this point the plants are still stretching.

Flowering Day 31

Okay so we have made it to day 31 of 12/12! I figure we're just a bit under half way there. The more Sativa-like pheno buds are still lagging behind the Indica, so I probably will be harvesting these girls in sections... The girls seem to be ravenous and have been gobbling up their food at a record pace. I have had to mix nutrients up twice this week in order to supplement. I think I will go to a higher concentration next water change. Plant heights are as follows:
50 Sativa/ 50 Indica phenos - 38"(97 cm), 36"(92cm) and 44" (112cm)
20 Sativa/ 80 Indica pheno 32" (82cm)(and about as wide...)
Kinda frustrating to have this much variation. All four plants seem to be maturing at different rates. Another reason to use clones.

Maintenance:

Maintaining a well planned DWC crop is about as easy as it gets. Here is a list of daily tasks that I perform to maintain healthy growth.

PH and TDS/EC are checked three times a day. In the morning when lights go on at 7:00am. At noon I check during lunch and then again at 6:00pm before lights

out at 7:00. Depending on the readings, I may feed the plants or adjust the pH. I record the start and end readings in a journal. This helps to identify trends and prepares me for future crops with this strain. Any unusual tendencies, such as nutrient sensitivity, deficiencies, etc. are recorded as well. In theory you could probably grow without all of this effort, but you might not learn as much as quickly. I rotate the plants bucket's during these checks as well. This is a delicate process that requires patience and care. Each plant is gently rotated 90 degrees, three times a day. This allows all of the plant to eventually be exposed to the sweet spot of the HPS. Be sure to gently re-position leaves and entangled branches during this process. Once the plants have been rotated, I tuck in any fan leaves that are covering up bud sites. This is a frustrating and thankless job. Marijuana plants are light junkies, they will selfishly hog any light that comes by, even at the expense of sister branches and nodes. Combat this by diligently arranging leaves to form compromises. I never pick leaves off of my plants unless they are ready to come off naturally. I figure that this plant knows best how to manage it's own resources. It is a weed after all. Finally, check the temperature. Move your thermometer's probe around your plant's canopy to locate any hot spots. The temperature is only accurate if it reflects the true reading of your plant's highest point. I check my reservoir's temperature and I try to keep it in the upper 11 - 16 C. This temperature range seems to work best for transferring oxygen and maintaining healthy roots. I check for good air bubble action and make sure the pumps are operating correctly. These cheap pumps will last a long time but they do occasionally bite it due to poor workmanship... While it seems like a lot, all of these tasks can be combined into a session that takes less than 30 minutes per day. Not too bad for 0.63 lb (284 gr) - 0.75 lb (340 gr) of kind...

Flowering Day 38



Changed my water today. Bumped up the nutrients to 1200. The buds are not developing as quickly as I'd like. Hopefully this will help fatten those buds



up... Two of the girls are starting to turn purple, and it is fun to watch the colour spread throughout the leaves. These Blueberries are very pretty plants. Can't wait to see them in about 4 weeks... The buds are frosting up nicely. I looked at a piece of leaf under a microscope earlier and the trichoma's are plentiful and clear as a bell. I use the condition of the trichomes to determine harvest time. Some strains mature with white hairs, so I don't feel colour is an accurate indicator of readiness. Although it's too early to tell, my gut tells me they will be ready in 25 - 30 days. I'm losing fan leaves rapidly on one of the plants. This is my fault. I misted some of them early on in flowering and the intensity of my HPS burned them. When you mist too close, the light intensity is magnified by the water drops on the leaves. I maintained the temperature in the mid 16 C range. Lower temperatures allow this water to stand on the leaves longer before evaporation/absorption. Beware... Everything seems to be on track. Hopefully the extra nutrients will kick-start the buds a little.

Flowering Day 45



The buds are getting very frosty and dense. The cooler temperature and extra nutrients seem to be plumping up the girls nicely. The last few weeks will really be the most interesting, as the buds will really go nuts while sensing their impending demise. I have mixed feelings about flowering. I love to watch the flowers 'bloom' and develop, but a part of me is sad that my plants are in effect, dying right in front of my eyes. Making



clones and running a continuous cycle is the only solution for me. New life replaces the old. I really think that this strain is capable of going as high as 1400-1500 ppm. These girls are little piglets. My pH seems to be much more stable with the higher nutrients. I still am not experiencing any deficiencies other than N, which is expected at this point. I will definitely be harvesting colas first and then continuing down the plant while the lower buds fatten up. Most of the lower buds are lagging behind quite a bit. The only true Indica pheno is surprisingly, the slowest to mature. I really like this plant and am looking forward to grading the smoke. It is the plant with the dark purple leaves and ultra compact buds. Looks scary up close.

Flowering Day 52



Busy week! All right, we are in the home stretch. Lots of frosty stuff going on, buds are still not there yet but I see the end in sight. My purple Indica pheno is way behind the others.

It stretched quite a lot when I boosted the nutrients. Hopefully I can harvest the tops of the other plants and lower my light down. The 'popcorn' buds on the lower branches are still a long way off. I'm not going to cut these girls until they are completely finished.

Too much time and expense to settle for premature nuggets. Normally, I would do



my last water change at this point. I want to keep them on nutrients for a little longer though. My nutrients are around 600 PPM so I mixed up some lunch for the plants and boosted it back up to 1200. I will keep an eye on them this week and plan on doing a full 10-day or so straight water flush mid next week. The buds are still filling out at this point, so I want to make sure they have plenty of nourishment. I think the lower



temperature is extending the flowering/maturing period by a week or so. I think it is well worth it though because the buds are getting very dense and thick. One indicator of too much heat is light fluffy buds.

They look great on the plant but shrink into very airy, crumbly buds that burn and smoke very poorly.

Harvesting too soon is probably the worst thing you can do with Marijuana. Wait the extra week or two and enjoy your harvest the way it was meant to be enjoyed. Please be patient and wait until your buds are ready.

Flowering Day 59

I am on day 5 of a straight RO water flush. The plants definitely need to go another week. I'm disappointed by the lack of accurate harvest information for this strain. What little info there is gives

contradictory times. I am confident that 8-10 weeks given by HQS Blacklabel is pretty accurate. The buds have started swelling and resin production seems to have doubled since I took away their food - sorry girls. I have been lowering the lamps and temperatures to around 11-13 C. No real change in colour. I am convinced that plant colour is dictated more by genetics than the ambient indoor temperature, although the outdoor BB plants that I have seen, responded with colour when grown in lower temperatures. Two of my plants have purple fan leaves. Of those two, only one has purple calyxes. The plant shown with the purple cola, is green everywhere else



and the one with a bright purple stalk and branches, is free of purple on the leaves as well. I think I will make my cloning decisions based purely on flavour and buzz. I grow strictly for my own supply, so eye appeal doesn't matter that much to me. The fragrance is beginning to smell fruitier, but I still can't say that they smell like Blueberries.

Flowering Day 66



Not much to report, plant wise. Buds are



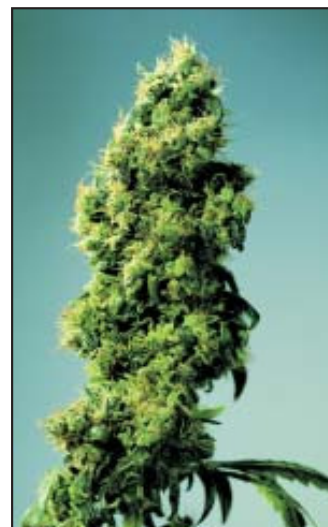
continuing to fill out and mature. Two of the colas will be cut this weekend and the other two early next week. The 80/20 pheno is almost done, which makes sense being that it is more Indica.

The others are all pretty close behind. I will post harvest photos as I cut them, including wet weight, dry weight, drying info, cure, etc. This will probably be an extended harvest, maybe another two weeks total, perhaps...

Overall, I am satisfied that I provided the 'optimum conditions', referenced by HQS Blacklabel for good yields, but I will be lucky to grab 0.50 lb (227 gr.) from these phenos, which is poor in my book. On the plus side, all of the mature buds are very dense and compact and should smoke very well. The good news is that I have grown out a mother from clone of my favourite plant. This pheno will have the highest yield by far of the group and has a branch structure that should work well for a SCROG grow. Hopefully the high will match the plants appearance.

Continued next issue...

Any grow related question? Email me at barth@ganja.com



MJ = Marijuana
DWC = Deepwater culture, the name of the hydro system used
PPM = Part Per Milli
MG = Magnesium
N = Nitrogen
GH = General Hydroponics
Phenos or phenotypes = The different traits that occur in the same strains are called phenos. You can have sativa or indicaphenos in a strain. The best a plant is breded the less phenos will occur.
SCROG = This is just a way of growing where the plants is topped and the branches are spread out to increase yield. Used when one has only a couple of plants.
SOG = This is the opposite of SCROG, this is just letting the plants grow untopped in a large numbers with very little veg.
FIM = This is an advanced topping method where one pines 40% away from the headshoot. Still leaving 60% of the shoot on the plants that will become forming between 2-12 extra branches instead of the normal 2 when one normally tops a plant. This doesn't always work and it takes some practice to do it right. Mostly you only get 3-5. With some experience 8 can be achieved.
POTW = picture of the week



Blueberry

From seed to flower, final

By Bart B. Grower: Aja

Harvest part I

Well the day finally came to chop the colas down, and I reluctantly beheaded my girls. The trichomes reached around 80% cloudy today so off they came at day 70. Late bloomers to be sure. I lowered the lamp down to supercharge the remaining buds with lumens. I will probably chop most of the larger buds later this week and the popcorn size buds even later. These plants really aren't at home in a cramped closet. The tight confines have really short-changed some of the lower bud sites. I am hoping the more Sativa pheno that I took a mother from is good quality, as it works better with my grow dimensions.

Harvest Part II

As of yesterday, all of my BB's are harvested and drying. The wet yield looks pretty good, although the stems are very 'wood-like' so I know the weight is deceptive. About 2.44 lb wet. If I lose 75% water, which is typical and trim down the stems, I could easily hit 8+ ounces (227 gr). 2 ounces (57gr) per plant from seed seems low, but probably decent for this stingy strain.

THE SMELL!

These are the smelliest plants I have ever had the fortune of being around. The odour is so strong that it almost makes your eyes water when you enter the closet where they are drying. DO NOT grow this plant unless adequate odour control is available. Way too easy to completely saturate your house and neighbourhood with 'perfume de cannabis'. Speaking of smell, no Blueberry odour at all. If anything they smell kind of skunky. I know from others that the smell will arrive later on in the dry/cure process. Let us hope so. The closet I am drying the buds in, is 17 C with around 25% humidity and is completely dark inside. I have labelled the hangers in order to keep the different phenos separate. All of the buds are drying nice and slowly. I have a fan inside to circulate the air which only adds to the odour problem. Thankfully, I am 'remodelling' my home and as a result am not expecting visitors.

Harvest part III

Finished trimming all of the buds last night and this is the end product of my BB crop. The smell is overwhelming, mostly berry or citrus. Curing will tell the final tale. Yield was pathetic, IMO, barely a 2 ounces (57gr) per plant average. Many of the buds were too small and were thrown in the kif container for hash fixings. Total yield was 8.5 ounces (240 grams). I will elaborate on the yield per pheno specs next week when I post the final grow report. I smoked a little bud off of the purple cola and it rocked my world. Upon exhaling the first hit I could feel my

face tingle and slowly go numb. My nose hairs really started tingling. The smoke is very smooth which encourages bigger hits than necessary. The smoke expands and the stone travels down your body. After two hits I tried the head trick. What I do is to move my head quickly to one side or the other and track how long it takes my brain to catch up. Very long pause indeed. Also I have very sore knees from sports in my youth and I immediately felt my joints going numb. I was able to go up and down my stairs with no pain or soreness at all. The taste is kind of earthy, not berry-like at all, with a sweet aftertaste. This sweetness is most likely non-converted sugars retained in the bud. Too soon to be definitive - but pretty impressed so far.

Final Grow/Smoke Report

Well, I've gone over my notes and am now ready to render my personal conclusions on this strain. I definitely feel that a lot more growing and pheno testing is required to validate most of the conclusions, as I only grew five plants initially. With that in mind, here are some comments that I feel are relevant: Shared physical traits - These are very sturdy plants. All shared wood-like stems and were very rigid throughout. Leaf shapes were uniform between phenos and the fan and shade leaves were quite large and thick leaved. All of the plants had very tight branching. Nodes were spaced evenly about one inch apart. This would be a more difficult strain to train, as there is little flexibility among the branches. I would definitely recommend pruning and some form of topping/FIM/Super Cropping, as light penetration to the lower areas of the plant is very poor if left untended. This is a low yielding strain, if left to itself. The bushy, low stature of this strain makes it a liability in a cramped grow room and without training, the plant will grow into a cylindrical shape by pulling its branches inward, making the core of the plant very tight and consequently, light resistant. Training and pruning are again, encouraged. During the 12/12 stretch, the plants doubled in vertical size. This stretch went into the fifth week of flowering. Only the Indica pheno went to the sixth week. Each of these plants showed unique needs at some point in the growth phase. Due to the esoteric nature of these requirements, I would limit Bubbler crops to this strain only, so other plants will not be adversely affected.

Nutrient needs / Deficiencies

Germination/ Vegetation

The cloning solution that I used to germinate the seeds worked well and seemed more than adequate for the first few weeks. No burn or stress was detected during the first two weeks. All



seeds germinated fairly uniformly with the exception of one, which was culled from the crop due to excessive height. The stems were adequate to support growth initially and the root systems developed very quickly with no problems. I found that at three weeks the seedlings suffered slower growth at 250 ppm. After raising the concentration to 450-500 ppm, I noticed an immediate improvement in growth rate. I'd advise watching for any slowdown during this period and responding with an incremental raise in nutrients until you see a slight tip burn, then back it off a bit by diluting your mix with straight water. I ran into some serious pH fluctuations with three of the

plants during week 4 and a very bad Potassium deficiency was encountered at week 5. These problems disappeared when I switched to my Flowering nutrients and started 12/12.

I am using a 5/5/10 mix with my biggest mom currently and she is doing quite well at 4 months old. I would recommend raising the Potassium and Magnesium if you plan to veg past 4 weeks.

Flowering phase:

I progressed from 800 ppm - 1100 ppm - 1300 ppm - 1500 ppm in two-week intervals. I never really felt that the plants were receiving optimal nutrients until 1500 was hit and slight tip burn appeared

on two of the plants. In future I will use a more aggressive feeding schedule, maybe start at 1100 and move to 1500 after week 6. pH remained rock steady at higher levels and I was confident enough to lower it to 5.2 for all plants in the final weeks.

Phenotypes

There were only two phenos by the strictest definition, but overall I felt that there were three types that shared more than just colour differences, bud structure and leaf shape.

Pheno #1

This type resembled the advertisement, an 80/20 Indica Dominant - shrub. This plant was very short and very wide. The leaves turned purple around week 5 and the cola was purple with purple calyxes. Finished height was I believe, 32 inches (82 cm). I found there to be way too many leaves on this plant! Interior buds ended up underdeveloped due to light penetration issues. I really never liked this plant. It was much shorter than the others throughout the entire grow, and despite its beautiful appearance, it yielded only 1.5 ounces (42grams). The lower foot of this pheno yielded only hash fixings.

Colour: Dark Purple leaves and calyxes at 5 weeks flower.

Ease of Grow: 8

Beauty: 10

Yield: Shitty - 42g.

Smoke Report - Okay, so I like the plant a little more after smoking its buds. No Blueberry taste, instead it is a cross between lemon and skunk, if you can imagine that. Smooth, even smoke that will alert any nose within a mile. Very strong body high that hits you immediately. This is Medicinal quality all the way. Your face goes numb and the rest of your body follows. Snoozer pot if you let it. High lasts about 4 hours. No headache or other 'down' trauma in my experience. No munchies or cotton mouth, although it leaves a mild aftertaste, which may come out in the cure. Very potent stuff that will sit ya down quick. Mild paranoia, this should go away with a longer cure. Great TV pot, or just right for staying in for the evening.

Potency: 8

Taste: 6

High: 7 Kind of couch lock, does numbers for my insomnia.

Desirability: 5

Social Liability: 0

Paranoia: 5

Friend Maker: 10+ (it's still way better than the commercial available in my area.)

Pheno #2

This type had the POTW winner for a cola. The cola turned purple but this was the only area of the plant to show colour. The stems were dark red, but the leaves stayed green. If it weren't for the beauty of this plant, and the fabulous high, it would have been a total loss. This plant had a nice fat cola surrounded by really puny bud sites that never really got any bigger. Yield was lousy as a result. I will never grow those clones, that is a given. Most of the lower plant was processed for hash.

Colour: Green leaves and calyxes except for the main cola.

Beauty: 10, Fantastic cola.

Ease of Grow: 8

Yield: Shitty - 50 g.

Smoke Report - This one was by far my first choice to try. The taste is amazing! Very berry-like, almost BB but not quite. Very smooth and easy on the throat and mind-numbingly potent. This is my happy pot - it just makes everything about the present seem better. Nice uplifting high with built in body numbing as a bonus. The real killer is that this herb is so good that I feel like I would have to do a serious SOG crop to keep me supplied.

Potency: 9

Taste: 8

Smell: 9

High: 8 Up w/body tingling side effects.

Desirability: 0, yield not worth the effort unless SOG/SCROG

Social Liability: 0

Paranoia: 0

Friend Maker: 10+ Friends will come out of the woodwork.

Pheno #3

This is my favourite pheno and was fortunately also the best producer. This pheno exhibits a tallish cola and long heavily budding branches. High calyx to leaf ratio with good sized fat and dense buds. These were more Sativa in appearance and as a result grew taller than the others with more numerous bud sites and better exposure to the light. One of the three that shared this type had dark purple leaves the other two were green. The growth was uniform among these three and the two that I flowered produced the best yield of the four flowered plants.

I believe that if I had been aggressive with pruning and FIM, yield would have been considerably higher (on all of these plants). I have a clone from one of this types mother's that is pushing 4 feet (1.22m) already in the vegetative phase and is soon to be featured in my future Mega- Plant: Friend or Foe, thread. **Colour:** Green leaves and calyxes except for one that was completely purple.

Ease of Grow: 8

Yield: Average (from seed) - 75g.

Smoke Report - I was pleasantly surprised to find a true Couch Lock in the group. Two hits will park you for a good long time. The taste is truly amazing. Blueberry, with a hint of spice.

Fortunately, the potency will prevent you from being able to smoke too much, 'cause the taste is addictive. I challenge anyone to finish counting to 100 after some of this stuff. I found even navigating around a DVD menu a little challenging. I certainly won't be writing Java on this weed.

Potency: 10

Taste: 10+ Promises to cure into the best I have ever had.

Smell: 9, Do NOT open the window.

High: 9 Couch lock; cancel your plans for the day.

Desirability: 10, I want more already and I have over 5 ounces (142gr) stashed.

Social Liability: 0, you won't be going out tonight.

Paranoia: 0

Friend Maker: 0 - Only my best friends will know about this one.

Summary

I have wanted to do a Blueberry crop for many years and I am glad that I finally have one under my belt. Many of the 'facts' about this strain are misleading.

Under conscientious eyes, this is a trouble free strain that will reward you with a high quality product at harvest. The plants greedily lapped up any quantity of nutrients I threw at them without any serious nutrient burn during flower. Fan leaves remained green on three of the plants all the way through to the flush.

Vegetation is another story. Watch your nutrients closely during week four and five prior to flower. Yield was below average from any standpoint, however tweaking and training should bring it up to average. In theory clones should add yield through genetic maturation. I strongly urge anyone growing this strain to use clones. The plants all grew in different stages and an even canopy is hard to achieve without topping/FIM. The large amount of leaf material is overwhelming on the Indica phenos, severely limiting light penetration. Pruning is a must with this strain. Colour appeared on the two seedlings that matured as purple and even 11 C night temperatures failed to encourage purple on the remaining two. Clones rooted within 10 days and looked pretty shaky for a bit but came around and grow very well under initial high humidity. Due to the variety of plants my seeds produced, I would recommend growing out as many seeds as you can to get a true idea of this plant's potential, take clones and grow the ones that fit your personal preference. Flowering time seemed just right at 70+ days, although outward appearances suggested that they could go on for another month. I kept waiting for a surge in bud size that never came. Get a magnifying glass to call the harvest date on this strain Happy growing from Aja & Bart B.!

The end

MJ = Marijuana

DWC = Deepwater culture, the name of the hydro system used

PPM = Part Per Milli

MG = Magnesium

N = Nitrogen

GH = General Hydroponics

Phenos or phenotypes = The different traits that occur in the same strains are called phenos. You can have sativa or indicaphenos in a strain. The best a plant is bred the less phenos will occur.

SCROG = This is just a way of growing where the plants is topped and the branches are spread out to increase yield. Used when one has only a couple of plants.

SOG = This is the opposite of SCROG, this is just letting the plants grow untopped in a large numbers with very little veg.

FIM = This is an advanced topping method where one pines 40% away from the headshoot. Still leaving 60% of the shoot on the plants that will become forming between 2-12 extra branches instead of the normal 2 when one normally tops a plant. This doesn't always work and it takes some practice to do it right. Mostly you only get 3-5. With some experience 8 can be achieved.

POTW = picture of the week



Happy Plants By Soma

In the many years that I am growing Cannabis plants, I have come to know how to recognize the signs of happiness. Happy plants are a sight to see...Deep GREEN leaves holding themselves up and open to the light with strong stalks.

When you walk into your grow room, what you see is what you get. I always take a deep look at the plants in my room. I look at the color of the leaves to see if they are the right color green. I don't want them to be pale and dull looking. When a marijuana leaf is healthy it has a shine to it, when it is sick it looks dull. Just like humans, cannabis plants have body language. A healthy pot plant holds its leaves in a slightly upright manner without bending its tips. It does not have discoloration in any area of the leaves. When a leaf is taken off and the underside examined, no spider mites or eggs are seen. My best friend in accomplishing an insect free garden is Neem oil. When sprayed on your plants every 3 days until the 4th week of flowering, you will have no bug problems. Neem oil is safe, organic and will not harm beneficial insects.

Knowing when to water your plants is an essential part of being a cannabis farmer. Cannabis does not like too much water; it needs soil with air in it. Good aeration and drainage that's what cannabis roots are looking for. It all depends what kind of growing system you are using to get the feel of when and how much water to use. With my growing beds it is once every 3 days, as it takes about 3 days for the soil to get on the dry side. When I use pots it usually takes only 2 days to get dry. pH is all-important. Having a good pH meter at your side in the grow room is essential. When I first started growing I thought that pH 7 was the best range for cannabis. I have since found that cannabis likes 6.2 to 6.6 in the soil. When I pH the water I am going to use, I bring it down with citric acid. In Amsterdam it starts from the tap at pH 8.3, so I add enough to bring it down to pH 6.0. The pH only gets lowered for a brief period of time and starts to go up again within about 8 hours. Starting out at 6.0 when you add it, the pH goes up slowly. As it goes up to different levels the plants get access to different nutrients. As the intake of nutrients varies

within the pH range of 6.2 to 6.6, the plant gets a chance to acquire what it needs at the different levels. Good ventilation and air movement are essential in having happy plants. I have a big exhaust fan attached to a charcoal filter that creates suction on the door when I open it. About half the size of my exhaust fan is my fresh air fan bringing in fresh air, rich with carbon dioxide. I also have 2 circulating fans to move the air around so that there are no stale air pockets.

You can't let your room get too hot or you will not have happy plants. I try to keep it between 22 and 27 degrees centigrade. It can take temps higher than 35 for very short periods, but I would try and avoid it. People who smoke my weed tell me it tastes so good. I tell them its because I use Guano. The Guano I use has an NPK of 2-15-2; I mix it in the soil and also add it as a tea. Guano is the food of choice for great tasting cannabis. (www.guanokalong.nl) I am always repeating this, because it is the most common problem with cannabis growers. Don't pick it early, when it looks like it's ready wait a week. That is one of the most important things I can tell you. My favorite part of growing happy plants is when people smoke the weed that has had a happy life. They notice how great it tastes and smells, and the high is clear and clean, with no pesticide residues, and no chemical taste. In the cannabis world there are so many chemical formulas, pesticides, super plant foods etc. Read the ingredients and think about whether you want to ingest them or not. Even though we don't eat the weed, we still consume it, and I for one don't want to consume any chemical poisons in order to have a bigger bud.

They say a picture is worth a thousand words. I am including some choice photos of some very happy plants, bursting with energy, getting ready to give me back all the love I have shown them. When growing indoors, the farmer becomes even more important to the plants. It is the farmer who controls the water, light, fertilizer, timing, and most of all, the loving care. Happy plants make happy people.

Keep it GREEN and Loving

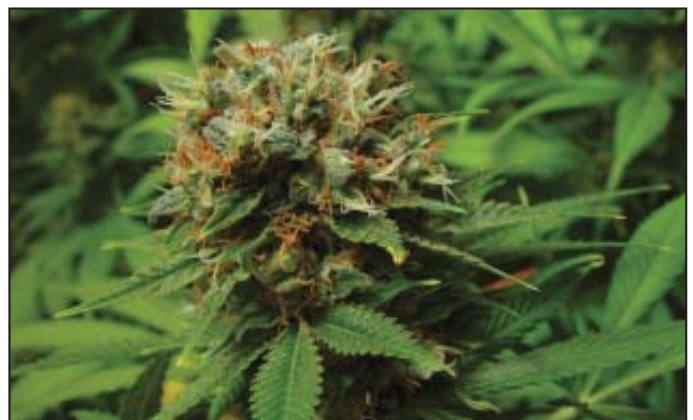
Soma



Amethyst Bud A



Amethyst Bud B



Buddha's Sister A



NYCD-Haze



Buddha's Sister B

Feminised White Widow

From seed to harvest, part I By Aja (from the USA)

Due to a delay in receiving the seeds, my schedule kind of screwed up a bit and I started these White Widows a while back. Let me tell you, these White Widow are great plants! I am doing a few new things this time around.

I used a MH light for the vegetative stage and I am using my own tap water with GH MicroGrow for Hard Water. I will see how well this works compared to the distilled water I had been using. I also switched to a 400w HPS for flowering. I am now at about 65w per sq. foot (929cm²) as opposed to the 100 I was experiencing with the 600w. I am very impressed so far and the heat saving is substantial. I will compare the results and see if there was any advantage to the 600 in my particular situation. I pinched the grow tip of all the seedlings and am anxious to see how this affects the yield.

Germination

It seems to me that many new growers



Germination

suffer from initial problems during this phase. It really is very easy, just treat them as living organisms and supply them with their needs. To be a successful grower you must be a bit of a nurturer, but at the same time you need to use common sense and avoid tinkering with your plants except when necessary.

Warmth and moisture are the two main conditions that signal a seed to begin developing. A temperature of around 75 F (24 C) will work nicely. Heated propagation mats are available for around twenty bucks but some household appliances will work just as well. I use my monitor or laptop.

For germination I use Rapid Rooter cubes and love them. After soaking the cubes for a few hours in pH-adjusted water (6.0), I simply place a seed in, pointed-end down and cap the hole with excess cube material. After misting the entire tray, I cover the whole tray with plastic cling wrap and cover it with a towel. Periodically, blow into the tray to give it an air exchange and mist if the cubes become dry to the touch. DO NOT bother your plants until you see seed shells coming from the cubes! Trust me, if you maintain proper temperature/moisture and the seeds are viable, they will sprout within a week using this method.

Do not feed your plants until they are at least 2 weeks old, as the seed embryo contains adequate nourishment for the young seedling for the first few weeks.

Week two

It took me three crops to learn this. All the seeds sprouted and broke ground in



week 2

the first week. I went out of town for a day and all but one of the babies had fallen completely over when I returned. The toothpick solution works great for me. Make sure that the twist-tie or string is not too tight.

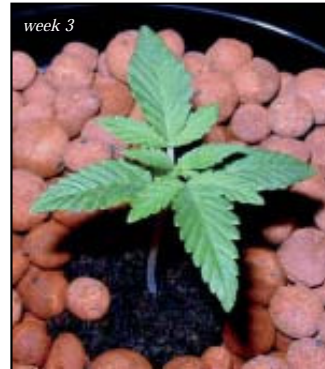
After a week I removed the splints and the plants supported themselves without assistance. Initially these girls have very soft and flexible stalks, stems and leaves, so keep a fan on them early and watch for stretching. Keep a fluorescent light close by to prevent unnecessary stretch and you will be fine.

Week Three: Nursery Transplant

At the end of week two, my seedlings have all grown root systems that completely encircle the cubes. One of the tricks to achieving this rapid development involves water deprivation. I no longer mist my seedlings daily; instead I keep



Week 3, nursery



week 3



Vegging



week 3

the lower third of the cube moist. By forcing the seedlings to seek out water, rather than delivering it to the leaves, the roots grow faster and move more vigorously toward the bottoms of the cubes.

Be careful to monitor the outer sides of the cube for emerging roots. These must be kept moist or they will perish quickly. I use a similar technique with clones. A hydro crop, like a soil crop, requires transplanting to a larger environment for root development as the plants mature. There are a number of thoughts and techniques on the subject. My personal preference is to reduce stress anytime that I can during the early stages.

Plants become stressed from two external irritants: Sudden changes in environment or otherwise poor conditions and improper/unbalanced nutrients.

To combat environmental change stress, I prefer to transplant early. The plants are able to recover much quicker at this stage. The first step is to prepare the

Do not feed your plants until they are at least 2 weeks old, as the seed embryo contains adequate nourishment for the young seedling for the first few weeks



Vegging



Week 3 nursery



medium. I soak the Hydroton Grow Rocks in a tub full of pH adjusted and nutrient rich solution. I use distilled water at this stage, as it is easier to lower the pH and initial fluctuations and to monitor how much the plants are consuming. To determine the amount I need, I use one of the net pots and fill it four times. I put one inch (2.5cm) of Hydroton at the bottom of the pot and carefully place the plant/cube in the center. Next I add pellets to the top of the cube. Make sure you are happy with the plants' orientation, as adjustments will be harmful after root development takes place.

Each pot is placed in my Rubbermaid SWC nursery. Two air stones supply bubbles to the solution; the water level should be around 1/2 an inch (1.27cm) from the pot bottoms. Bubbles should be able to splash the underside of the net pots. The temperature should be at room temperature. It is a good idea to prepare the nutrient solution the night before to allow it to acclimatize. I provide 1 - 45 watts of fluorescent light for each plant. These are very effective and the clamps allow me to adjust the lights to the needs of the growing plants. Because they are Compactfluoro's, they run a bit hotter so care must be taken to avoid burning leaves/ household items. As you can see, only four plants are developed enough for the bubbler at this point. I always grow one extra plant



because of this. There always seems to be a runt. This plant will be put to service as a mother or maybe become a subject in some freaky grow experiment. After the cubes are in the bubbler, I pour nutrient solution over the Hydroton *only*. Once again, I am forcing the rapid development of roots by encouraging the plant to expend energy on water exploration rather than vertical growth. Using this method you will experience rapid root development that allows your plant to experience the benefits of a hydro environment faster. Nutrient strength is around 500 PPM. I will watch for nutrient burn and adjust as necessary. My pH is still at 6.0 and will stay there until the move to buckets.

Seedlings: Weeks 3-4

I usually see a major growth spurt in the 3rd and 4th week; these girls really are growing strong. I have been fairly aggressive with the nutrients and thus far have only had a slight amount of lower leaf burn; this was on only one plant,



however. At 900 PPM I feel like they love it. After an hour or so of watching the droopy plants I decided to capitalize on their shocked state by moving them into the buckets. Might as well get it all out, eh...? Two of the plants had very long root systems that tangled with the others. I very carefully removed these tangles and moved the girls to the buckets one at a time. I made an extra effort to match the water temperatures and PPM - pH of both solutions (nursery/buckets). Plants react to change poorly at times, so I try to avoid hitting them with too many surprises at once. Note how quickly the roots have developed on these little monsters.

It is easy to get complacent and let your plants go too far in the pre-bucket stage. On the other hand, it is important to make sure your plants are strong enough to survive the rigors of DWC before committing them to this environment. Keeping the water quality the same for both environments will allow your plants to acclimatize in their new homes much easier.

The first round of buckets will feature distilled water and my veg mixture. I will switch to tap water and substitute GH Micro for Hard water Micro after the next water change, which will also be when I switch to a 0/8/16 mixture for 12/12. I have replaced the 600w HPS with a 40w MH. It will be interesting to note any performance issues as a result. With the exception of some early seedling stretch, this has been my smoothest crop yet. I'm a little worried about one of the plants being male, but it is still a bit early. After the plants have overcome the shock of the buckets and the light issues, I will

be pinching grow shoots to double my colas. My grow room works best with Sativa's, so hopefully I can prune in such a way as to optimize my space without tying down.

Vegetative Period

After two weeks of 400w MH, I have seen an amazing increase in growth. The fan leaves on these plants are massive. I had to prune every few days just to keep the plant open to light. Compared to the HPS, there is definitely thicker growth which makes sense, I was just unprepared for the **huge** difference. I am glad that I purchased a switchable ballast, I think the added grow rate was well worth it. As I said, these girls are growing very fast.

I decided to pinch the branches on this crop. What this means is that I roll the branches between my fingertips lightly crushing the interior lining of the branch. Afterwards, the branch will heal, effectively doubling, (in theory), its capacity to deliver nutrients in that area. While the branches are flaccid, you can position them or tie them while they heal. Another name for this is: *Super Cropping*. I pinched the growth shoots by simply grasping the shoot between my thumb and finger and pushing it back between the secondary shoots that are on either side. I did this on all of the shoots that were of size. The advantage here as opposed to topping or FIM, is that the plant continues growing rather than expending energy on repairing/regrowing the damaged stem. I usually only do this on the main growth shoots, but on this crop I want to encourage lateral growth as much as possible to avoid tying branches, which is a pain in the a**. If I do it right, I should get a very even canopy with maximum light coverage. There will be an initial slowdown due to shock, but if the environment is good the plants will recover very quickly.

Can you spot the not?

I started having doubts about this plant a few weeks ago, so I isolated it in the bathroom just to be sure. Sure enough, it has balls. Price you pay sometimes for using feminized seeds. Separate any suspicious plants immediately. I let this one grow a little more so the 'parts' would be easier for you to see.

Flowering: Week Three

I skipped ahead a little. Now that I am down to three plants, I have been training my girls to fill the gap left behind. I'm hoping that the extra space will bode well for the remaining girls. My tap water comes out at 400 PPM, with a pH of 7.5. I decided to try GH FloraMicro for Hardwater this crop to see if there is any advantage to using distilled water in my situation. The first thing I noticed is that the stuff looks really gross. Lots of slimy and stringy globs as you pour it out. I measured out the amounts and mixed it in. It is harder to mix initially, but overall no real difference in viscosity or procedure. I am still using 0/8/16 as my flowering ratio. One thing I noticed is that it takes a lot more pH Down to lower the pH. Roughly twice as much. After allowing the nutrients to settle overnight, I checked the readings and everything



seemed good to go. So far the pH has been rock solid (once I got it down there) and I will keep an eye on it. The plants seem indifferent to the change in water, thus far. All of the plants have numerous budding sites showing and I am encouraged by the sheer speed at which the plants are developing. They have seemed to average an inch or more of vertical growth per day during this last week. All three remaining plants are similar in type and fairly uniform in size and development. Compared to previous crops, these plants seem to reflect the description much more closely. I hope I planned the start of the flowering period correctly or I may end up with some very tall plants.

Week 4 - 5 Flowering

Well, the girly-girls are doing nicely. I have noticed two phenotypes thus far. The big difference seems to be the shape of the leaves and the formation of the buds. The more Sativa type has very long narrow leaves and a bushy bud. The more Indica type has fat, broad leaves and tight reddish-tinted bud sites. All of the plants are about the same height, although they differ by about a week in bud development. I have noticed significant stretch so far and I will not be surprised if these finish around twice as tall as they were in late vegetation. I waited one month to do a water change, as these girls do better with lighter nutrients. I have this crop going at week 4 without a complete water change. I am going to go the duration if possible. I truly believe that it is feasible to go a



Plants become stressed from two external irritants: Sudden changes in environment or otherwise poor conditions and improper/unbalanced nutrients



complete Flowering period without doing a single water change, provided you monitor your nutrients and make adjustments where necessary.

The Hard water formula seems to be working well. Here are some numbers I recorded while mixing my nutrients the last time. Note that the formula is 0/8/16 and I mixed up 20 gallons (75.7 l).

Starting PPM of tap water: 400
Initial pH of tap water: 7.2

After adding Micro: 730 PPM
After adding Bloom: 1260 PPM
After adding 25 ml Epsom salts: 1370

Total PPM - starting measurement: 970
pH after adding nutrients: 6.4

I had to add 30 ml of pH to take the mixture down to 5.5. I think that the nutrients are just right at this point. I will continue to monitor the health, but I am convinced that these girls thrive on less nutrients overall.

Week 6 Flowering

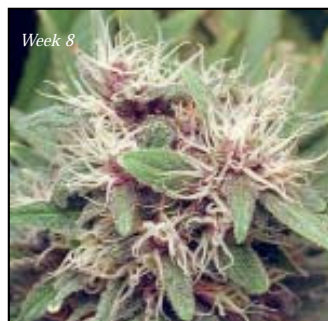
Past the halfway point and all is well. I burned the plants a bit with my aggressive nutrient regimen (Dumb Ass!), so I backed them off to about 700 PPM and the slight damage seems to be in check. I don't flip-out when I toast the outside edges a little, but I certainly don't want it to spread any further. I really love these WW's so far. They are very responsive and quickly adjust their leaves to the light. At times the fan leaves will point almost straight up to catch the HPS rays as it warms up. Nutrient burn appeared during a weekend that I was out of town, but I was able to stop it easily,

as I stated earlier.

Overall, these plants have been trouble-free up to this point, (except for the lone sexual deviant, that I blame more on me than the strain). The smell at this point, is surprisingly, worse than the Blueberry at this stage. Simply put, these ladies smell pretty good. Hard to describe, a little like Skunk, but sweeter. I think they smell lovely, personally, but I am certainly not eager to share it with the rest of the neighborhood. Odor control is a must. I hope it doesn't get any stinkier or I might need to implement more serious measures.

I believe that these girls require much less nutrients than the Blueberry's, but the jury is still out. I will monitor the EC to make sure I am giving them what they need for the next few weeks and raise it if necessary. There is a difference in bud maturity with all three plants. The most developed appears to be on track for a 10 week harvest, but the other two are lagging behind a little.

Stretch has been consistent and not really mind-blowing at this point. I expect another push in the next week before they settle down. Bud sites are plentiful and it looks like the buds are going to be pretty dense. Crystals are already coating the fan leaves on the plant that is furthest along, I hope this occurs on all of them. Still have no idea what kind of yield I will get, but looks promising thus far. If the smoke is as good as I think it will be, I might keep this strain around for a while.



Week Seven Flowering

Business as usual. I am not blown away by the speed at which these girls are progressing, but for a 10 week flowering strain they seem to be on track (?) The buds are really frosting up and I love the way the leaves are shaped, can't wait to get some more weight on these skinny little things. My nutrients are down to 600 PPM and the pH has been very solid. I think I am going to wait to do a final water change until I do my flush in week 9 or 10. It seems to be a waste of time and nutrients to change every 2 weeks, as I have noticed absolutely no difference in plant health between the two methods thus far. The plants are all about 36"(91cm) tall presently, and are filling my 2'(60cm) x 3'(90cm) space nicely. I haven't had to tie any down yet, but I may do so in the future to open up the inner areas of the canopy to the light. I have my light about 13" (33cm) from the tops currently and the temps are still only 75F (24C). Got to love that 400w lamp. Hope it doesn't cost me too much bud

One of the tricks to achieving rapid development involves water deprivation

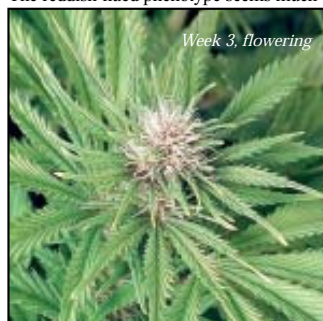
weight, so far it doesn't seem be any less effective than the 600 (in my 6 sq ft. - 0.56m2- situation), and without all of the heat.

Week Eight Flowering

In the final weeks now, at least I hope we are. Everything seems to be going smoothly with the reduced nutrients. These girls are not nearly as motivated to fill out



as much as the other strains I have grown previously. The buds seem very thick and dense. I will wait to pass judgment on the 400 versus 600 question, until harvest time. The two phenotypes are pretty distinct at this point, not sure which is the best though, they both look pretty sexy. The reddish-hued phenotype seems much



further along than the others and will finish up a bit sooner. I think the yield will be a bit higher for this plant as well. The other type is smaller, but has more even coloring and more numerous buds. I checked the trichomes and they are about 80% clear on phenotype #1 and 90% clear on phenotype

#2.

I want this to be my daytime herb, so I'm leaning toward the conservative side of cloudiness on this grow. I'm trying to get more of a head high with less of the stupefaction thing. My nutrients are around 400 PPM as I head into a straight water flush on Monday. I am going to use distilled water for the last two weeks, mostly because I still have a bunch left from the last crop. Starting to get a few yellow fan leaves here and there, but overall, the plants are still bright green. I am starting to see more white powder on the leaves (not mold, thank god..), but nothing to match the legendary WW tales I have heard on this. We will still have to see if I get that White carpeting effect on these gals, I sure hope so.

Harvest: Part 1

Well after a little over ten weeks, I gave up waiting for the fabled 'white carpet' and chopped my biggest girl after 48 hours of blackness. Don't get me wrong, this girl is *very* sticky, just no powdered donut look. Weight and density seem pretty good, although there is quite a bit of leaf material. Trimming is a great time for me so I don't mind. I have the buds hanging and all of the plants are finishing and drying. Gorgeous plant! The colors are really bright and vivid. The buds are very thick and heavy. Should get 3 - 3.5 oz (85gr-100gr) if I lose 80% to water. Very slick and trouble-free crop. I hope it smokes as good as it looks.

Harvest: Part 2

Well, I finally cut the other two-thirds of my crop down last weekend. Overall I am pretty impressed with this strain. The plants pictured are the second phenotype and are not as red or thick as phenotype #1, perhaps. Lots and lots of leaves on these plants. These girls will take over your whole house if you don't watch out. I still haven't tried any of the bud yet. I managed to prolong the drying time by raising the humidity initially when I first started, and later putting the plants into paper grocery bags to finish, prior to jar curing. The buds are still a little too 'green' to smoke. Total yield from 3 plants was 10.50 oz (297gr).

In the next issue:

Final Grow/Smoke Report



Feminised White Widow

From seed to harvest, final

Okay, so now that I have looked over my scribbling and dried all of the bud, I will offer up some observations on this strain. As usual I would like to say that a handful of plants hardly constitutes a fair and scientific investigation and more thorough growing is needed to make anything more than general conclusions. On a good note, I found this strain to be very stable and all plants were fairly uniform and similar in requirements and appearance barring the obvious color and leaf variation. With that in mind, here are some of my findings:

By Aja

Shared physical traits:

White Widow absolutely loves hydro. I have never watched a plant grow so quickly in the vegetative stage than these girls. It was an amazing rate of growth. After two weeks in the buckets, all of the plants had stems as thick as the circumference of a pound coin. The root systems developed very quickly and nearly reached the capacity of the buckets by the end of their cycle. The speedy growth compelled me to prune these plants very aggressively. I literally trimmed a full sized garbage bag. Pinching was a mistake with this crop. The plants went sideways in a hurry, forcing me to quickly tie down certain branches to achieve decent light penetration. The WW's will definitely get bushier and thicker when topped or pinched.

My cramped space unfortunately, was not well suited to this condition and I paid for

based on their quick development in vegetation. Instead these girls behaved like typical Indica's and sported a short, but husky, appearance all the way to the end. Stretch lasted until the 7th week of flowering. Plant heights were similar throughout and finished around 40"(102 cm). I have a feeling that there is a more Sativa dominant phenotype within this release that I have yet to discover.

Nutrient needs -Deficiencies

Germination/Vegetation

All five seeds germinated in five days or less and growth rates were uniform. The stems were not rigid enough initially to support the weight of the plants. Adding splints for support quickly solved the problem and by week two they were able to go unsupported. Keep a close eye on light-to-plant distance, as they will stretch

To be a successful grower you must be a bit of a nurturer, but at the same time you need to use common sense and avoid tinkering with your plants except when necessary

it with poor bud development on the lowermost branches. Due to this issue I have re-designed my grow room to allow more spacing between my plants. I am convinced as ever that there is no substitute for balanced light coverage. I'm undecided if yield increased with all my tweaking, but without pruning, these girls will overrun your house.

Training is very easy with this strain, as the branches are very pliable and easy to position. The fan leaves are gigantic and numerous, making it a constant struggle to maintain light to all of the areas of the plant. For this reason I see the WW as a great SCROG/SOG candidate. Super Cropping was effective with this strain and it recovered quickly with minimal stress. Care must be exercised when handling the branches and leaf stems, as they are very soft in the vegetative stage and easy to damage if you are careless. I split more than a few branches but they healed quickly with very little lag time in growth.

During the 12/12 stretch, the plants surprised me with their relative short stretch. Although they more than doubled in length during flowering, I had expected much more. Some of this may be due to the excessive vegetation time. These plants were all fairly mature before I went to a 12/12 light period. I guess I was envisioning a vicious stretch

very quickly if the light intensity is too low. The cloning solution seemed more than adequate for the first weeks. No other food or supplement was used until week three. As I said earlier, the plants grow very quickly and will surprise you each morning with their nightly progress.

I encountered no significant nutrient related issues during vegetation. Possibly the most trouble-free crop that I have ever had. The plants all stressed a little during the first transplant and reacted poorly to the HID initially. The plants also reacted unfavorably to temperature changes, so try to keep any changes to a minimum in the early days of life. The roots grow very quickly on this plant in optimal conditions, so be prepared to move them to individual containers soon if that is your intent. I would recommend going easy on the nutrients until you feel that they are lagging and then bump it up a bit. Unlike my previous crop, these seem to perform better with a less is more attitude concerning food. The plants really didn't smell much until the 4th week. At that time I started to notice a very strong odour. The odour is very skunky and will carry for miles if you let it. You will not be able to eliminate this smell without using some form of odor control; dryer sheets are not going to cut it.



Flowering:

All of the plants flowered at around 18"(45cm) and my initial flowering mixture was around 900 PPM. This was too high in my opinion and resulted in minor edge and tip burning on two of the plants. After taking it down progressively to 700, I think the plants were much happier. I'm not convinced that higher nutrients are beneficial in this case and I will certainly be less aggressive the next time around. I maintained 600-800 through week 8 and then diluted the mixture to 0 gradually for flushing in the following weeks. Bud sites appeared roughly two weeks in and sex was evident at around 10 days for my one hermaphrodite, and at two weeks for the remaining three females. The hermaphrodite wannabe had shown obvious stress during transplant and as a result warranted my suspicion. Sure enough, it turned to the dark side and was quickly destroyed.

Phenotypes

There were two phenotypes in this crop and they looked nothing alike.

Pheno #1

This type was more Sativa dominant in appearance and featured bright reddish-purple calyxes and long very thick buds. It matured a full two weeks ahead of the others and yielded the most of the three. This plant finished at 44" (112cm) tall and was theoretically ready to cut at week 8; I let it go longer hoping for more resin and crystal production. Although the plant finished very sticky, I doubt that the extra time was worth it. Because of the quick maturity and decent yield, this was the better of the two phenotypes and I would recommend keeping it if you come across it, as the finished smoke is pretty good stuff. Calyx to leaf ratio was average, but there seemed to be quite a lot of trimming and hash fixings at the end.

Color: Bright green with dark red calyxes that turned purple in week 4 of 12/12.

Beauty: 10, Sweet looking colas and leaves.

Ease of Grow: 10, great strain for a first time grower.

Smell: 8+, Don't grow this plant if you can't remove a great deal of odour.

Yield: decent - 120g.

Smoke Report

I have heard many conflicting reports on WW and I wonder if that has to do with all of the crossbreeding and different seed banks. Regardless, here are my thoughts. To be objective I cured the bud for a minimum of two weeks in glass Mason jars after a two week dry and smoked it in a clean glass pipe, which really is the best way. The buds burn very well leaving only a fine white ash behind. They are very tight and one good-sized nugget will get 4 people very high. The taste is unique and hard to describe. Some skunkiness yet too sweet to be Afghan. A very slight citrus after taste that isn't unappealing but doesn't make you crave it like the berry or haze strains do. This is sleeper herb, and sneaky at that. The tendency is to smoke more than you need only to find yourself impossibly stoned. My eyes got a little



bright red hairs at harvest.
Beauty: 10, Very pretty leaves and bud formations.
Ease of Grow: 10, no problem.
Smell: 8+, Skanky..
Yield: Average, 80-90g.

Smoke Report

These buds took a long time to dry, even now as they cured, they are still damp with resin and very sticky to the touch. The nuggets are not as dense as phenotype #1 and mash together very easily when handled. The smell is wonderful and I look forward to opening the jars up each day for that initial blast of MJ goodness. The nuggets burn very evenly and reflect the thoroughness of my flush. The stone hits you immediately and the taste is quite pleasant. A tasty mixture of spice and pine, with a hint of fruit. The high is body in nature and quickly extends to your face, legs and arms. Your joints quickly go numb and the rest of your body follows rapidly. It's like being immobile but your mind is clear as a bell. Unusual in that you think you are okay until you take a step and think better of it. Not a true couch-lock, but close. No nasty side effects, but there is a mildly unpleasant aftertaste that may or not disappear with more curing. Overall a nice smoke, with muscle relaxing and face numbing tendencies.

Potency: 8
Taste: 7, may get higher rating in future.
Smell: 9, very pungent and strong. Prepare to smell like weed.
High: 7, body high with clear head.
Desirability: 5, poor yield, too many leaves.
Social Liability: Not good for social smoking, motivational vacuum.
Paranoia: 0
Friend Maker: 10+, Great gift for friends in need of medicine.

Summary

White Widow is another one of those famous strains that I had wanted to grow for some time. The lack of clear information on WW was frustrating, but overall I feel it is an excellent plant that requires a good deal of growing to find that elusive 'killer phenotype'. The stability of the strain and the relative ease of the crop encouraged me. First time growers should definitely give this one a shot. Expect a few lemons in the group, but even the lemonade isn't too bad.

The plants were happy with lighter nutrients in vegetation and flowering and will reward you with fantastic rates of growth if given the right balance. These are very responsive plants that quickly tell you if there is a problem. I managed to shock one into Hermieville, but that was my fault and I don't associate the event with the strain, rather, the stress coupled with feminized seeds was the culprit. Yield was above average from phenotype #1 and average for phenotype #2.

I believe that pinching increased the yield on phenotype #1 but might have been harmful to #2. A SCROG would optimize this strain and pull out a higher yield. Like I mentioned before, this is a very quick growing plant that requires maintenance throughout the vegetative period. Left to its own devices, it could easily overgrow the world. Colour appeared on the one phenotype but the others remained dark green with a heavy coating of resin. It is impossible to come away from these plants during flowering without a strong odour of dank. Even brushing your bare skin against the buds produces slight tingling and numbness to the affected area. From that perspective, these are the most resinous and naughty plants I have grown.

The clones I took rooted very quickly and seemed to grow well after the initial shock period was over. Care must be taken to properly support them early on, as they are very pliable and easily bent. All six rooted within ten days and were ready for transplanting. A harvest time of 8 weeks was probably optimal for phenotype #1 and 10 weeks turned the others into couch lock. I would think 8 weeks max for the types I grew; the additional two weeks had little benefit other than a slight increase in Resin/CBN's. The trichomes are easily visible and can be observed without magnification, even in the early stages. I would still advise using a magnifying lens to be accurate.

600 watt HPS versus 400 watt MH/HPS

I can say without a doubt that the 600 produced much tighter and larger buds than the 400. Although the lower temps were nice, the longer flowering time and poor light penetration of the 400 in comparison, made me decide to use the 600 for flowering in the future. The 400 MH was awesome in vegetation and contributed to the overall speed of the crop. I found a remarkable increase in both quantity and speed of vegetative growth while using the lamp and this made me wonder whether I really want that much leaf material? Jury is still out on this one; I will have to do more than one crop with the MH to make any definitive conclusions.

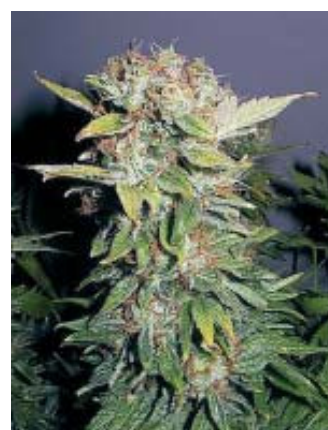
General Hydroponics Hard Water Micro

I used the Hard Water nutrients this time in an effort to reduce my dependence on distilled water. I found no difference in performance at all. I maintained water quality with daily fresh water and adjusted the pH and PPM levels as required. I also elected to go through flowering while doing only one water change. This seemed to have no effect on the plants whatsoever. I added nutrients manually to all three buckets when needed and added

fresh water periodically to keep salt levels down. The main difference I found with the hard water versus distilled was the amount of pH up or down that was needed to adjust the water. Hard water requires around three times the amount that distilled water does to affect the same change. I did flush with distilled water at the end, due to the stockpile I had on hand. In the future I will probably continue with my tap water and just hoard the pH down.

I have come across a bunch of tasty strains in the last month and will be growing multiple varieties this time around. Hope to fill my closet up.

Take care Aja



puffy and cottonmouth set in shortly after the first hit. After two hits from my SteamRoller, I am ready to sit out for a while. Not trippy, but very tingly and cerebral. I have come up with several cool ideas while under its influence, now if I can only get motivated to act on them. The taste is average, but should get better with a longer cure. The high is very reflective and can fuel some very interesting late night conversations. No munchies or other side effects were encountered other than the eyes and cottonmouth mentioned earlier.

Potency: 8, coming from me, that is pretty high.
Taste: 5, not too good, not too bad.
High: 7, above average, good daytime buzz, not a sleep aid.
Desirability: 6, way too much out there that is better and finishes quicker.
Social Liability: 0, A good up high with minimal physical impairment.
Paranoia: 0, No paranoia at all.
Friend Maker: 9, Very social weed that offers a good time for all.

Pheno #2

The last two plants I flowered and the one straggler that I kept in vegetation, fall into this category. They all lagged about two weeks behind phenotype #1 and yielded less at the end. The calyx to leaf ratio was poor. Bud sites were small and surrounded by legions of fan and shade leaves. Just keeping even light exposure became a nightmare requiring numerous pruning sessions and creative uses of string. Not a spectacular yield by my standard and they matured much too slowly in flowering for my tastes. Both flowered plants were nearly identical in yield and final size. In a bigger grow this phenotype wouldn't have made the cut, not enough buds for the amount of leaf material, and they just didn't keep up with the others.

Color: Dark green leaves and calyxes, with

Grow disaster becomes top harvest By Bart B.

NLX on coco

Better and better; it just keeps getting a whole lot better each time, and that's as it should be. Whether it is down to experience, luck or just plain coincidence, who knows. Do what you like to do and do it well, then you will get good results. What had threatened to be a screwed up grow turned out with the passage of time to be a top harvest. This time it was the supersonic NLX (Northern Lights Cross) that turned out to be a real winner under the lights. This is a story about what an amateur can achieve if he comes through a heat wave having started with too long a pre-growth.



NLX, just before she goes into bloom.

The story begins in the Spring of 2003. The temperature had become nice and warm. Now and then it was actually very hot. After a poor start early in the year the spring sun was beginning to get to work and the temperature barely fell below 20 degrees. This was then an outstandingly good period in which to stick some more clones inside, because you don't even need to keep them warm.

Many might have problems with the heat, but as long as you provide sufficient ventilation this should not necessarily lead to a failed crop. Hang a few fewer lamps, use a heavier-duty ventilator, or hang water-cooled or air-cooled lamps - these are simple solutions for bringing the temperature in your space down a

and ventilator working flat out. But that is a situation that cannot be compared with the bigger growers who have 10, 20 or more lamps hung in their spaces. To these people I have only one word to say: airco. This because time and again I hear from growers that if it's cold you can warm things up but there's nothing you can do against the heat. But with a small (or large) investment in an airco installation, even with the most roasting hot of Summers you can safely continue to grow in a nice fresh indoor space. This is obviously not something for everybody, but it is an investment that quickly repays itself in bud yield. The technology what's more never stands still. Also available in the growing scene at the moment is a piece of equipment on sale that can

With a small (or large) investment in an airco installation even during a scorching hot summer you can grow in nice fresh circumstances indoors.

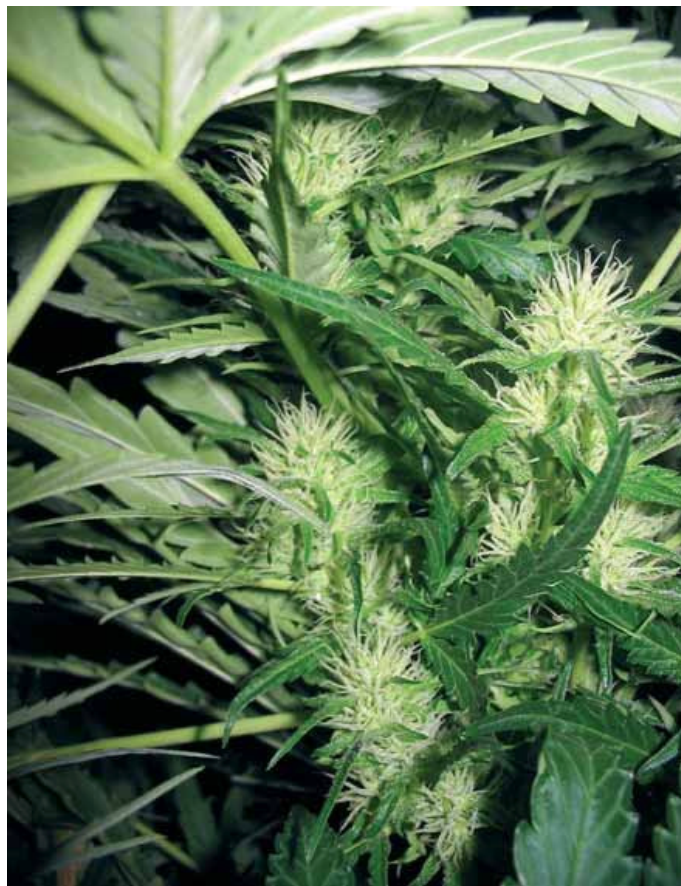
few degrees. I personally set my lamps to burn at night, like most people probably, as so long as no heat wave comes along to nudge your night time temperatures above 30 degrees, everything runs pretty smoothly. The ventilation does need to be on continuously though, which will make sure the cool evening air is drawn fully through the grow space.

By the way, I have replaced my old 400 watt lamp with two 600 watt lamps, a question of looking ahead rather than looking back. And the temperature is kept nicely under control, even in a reasonably small grow space. It stays under the 30 degree ceiling and there is sufficient ventilation thanks to a vacuum pump

cool off the inside temperature of the your space before you enter. At the same time, the same piece of kit can keep the air warm in winter, so that your growing space can be continuously kept at an ideal temperature.

Reliable clones

I went in search of decent, reliable clones, and boy did I find them. This time around I got hold of some NLX. Just how good they really were only became fully apparent in retrospect. Evidently I have to-date had good luck on the clone market. But many growers have less luck. The quality is not always satisfactory, certainly in the spring and



A few weeks in to the bloom. Lovely, elongated buds.

summer months, when it is advisable to take especially good care. Watch out particularly for clones infested with spint or other pests.

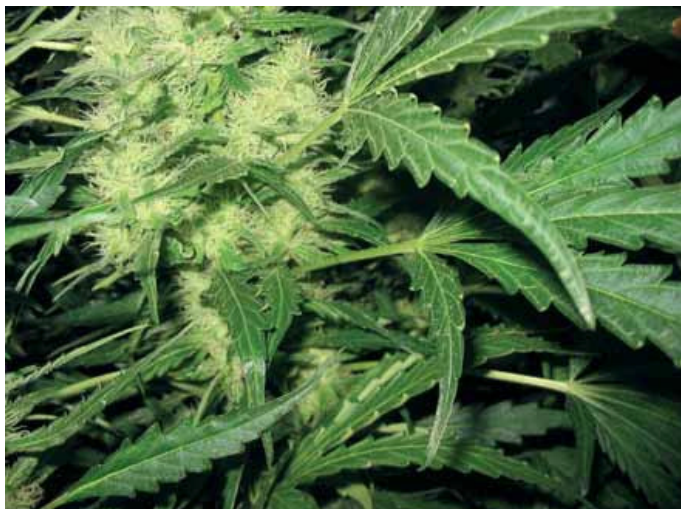
I planted 17 NLX clones in four-litre pots filled with coco substrate. I have already mentioned how happy I was with them. For a healthy, vigorous start I added root stimulator and enzymes to the feed water. The pre-growth was started under a 400-watt lamp that was switched over to a 600-watt after a few days. Once they had burst into bloom, I added another 600-watt lamp to the set up. Apparently the heat suited them well, despite the fact that everyone complains about the heat given off by a 600-watt lamp. It was not actually that different, but this does come down to the same point I made earlier: ensure good ventilation. Had mine not been powerful enough, then I could still have bought a stronger one. That is why you will frequently hear how important it is to buy a unit with a more powerful suction than you actually need (at the moment). Suppose that you start your first grow with a few plants during the Winter months, and you calculate the capacity of your grow space and the ventilation you will need for it. If you buy your ventilation perfectly tailored to this then you will certainly be fine during the crisp Autumn and Winter months. But what happens when the temperature begins to rise in the Spring and Summer? Then it will become apparent to many that they have bought too feeble a ventilation capacity, and after a few months they will either have to buy another one or stop with growing altogether. One other advantage of buying a larger capacity than you need at the moment is that the ventilation will be fine

just turning over at half speed, which will considerably reduce the noise created. The alternative is to have a smaller ventilation capacity and have it run flat out, and that will make much more of a racket. Are you also going to have to spend on hefty noise insulation as a result?

Pre-growth: indoors or outdoors?

Normally I would let the clones go through their pre-growth outside, but because the sun was not yet up to scratch I had no choice but to do this indoors. Nonetheless, I remain a firm supporter of letting everything simply complete its pre-growth outside. But anyway, this time I let the clones have a week and a half of growth. This was a little too long, it later turned out, because the NLX is a very powerful plant and a great grower. That extra half week of growth came about thanks to a problem when a timer burnt out, thanks to which they continued to grow. Fortunately I discovered the problem quite quickly and was able to sort it out.

This incident prompted me to ponder how important it is to always check your lamps regularly and make sure they really are turning on and off at the right time. In the growth period this can not do too much damage, but what if I had been at the flowering stage? Just imagine, you don't keep a good watch out and after a week you see your plants going back into growth instead of continuing to develop their blooms. This is not a nice thing to witness. So make sure your equipment is in a reasonable state, and don't spare the pennies when you're buying your timers. Using cheap gear will sooner or later lead to problems.



The same buds sometime later. Things are looking better.

The NLX-babes had reached a good 15 to 20 centimetres. The smallest were those growing in soil. I always put a few plants in soil, for one reason just to see the difference when grown in coco. The clones in coco sprang up quite clearly faster. The clones in soil needed a few days more. But no sweat; despite the extra days they took, these clones too achieved a good growth,

Rockets in coco

Bloom was stimulated, and the plants began to develop at a rapid pace. They literally shot up like green rockets; the launch of the space shuttle had nothing on these babies. NLX can without any trouble easily reach three metres in height. It really is a fantastic grower. Unfortunately, I did not know that in advance, otherwise I would certainly have given them less pre-growth. I would also have been better off topping them. But instead I had to

Another advantage of a larger capacity is that you can then run this at half speed, which will make the ventilation noise considerably less.

keep raising the lamps and raising them again, until after about two weeks I could not raise them any further. And the growth, sadly, was still not finished. I had not topped them, I guess because I kept thinking 'well they surely can't get much bigger'. Once they had reached a height of 1.30 metres, I finally realised that I did in fact need to top them. But they eventually reached a height of 1.60 metres.

The NLX is a slim lady with very short side branches. She is, judging by the leaves, mostly Sativa, which explains the extreme growth. With which Sativa is the NL crossed with? Some people reckon it's with a Haze or Superskunk, which would explain the strong growth. In any case the NLX grows a dominant cola bud, by which I mean that she expends most of her energy in making one enormously long head bud if you do not top her. Topping at a height of just 30 to 60 centimetres is not unusual. The growth pattern is comparable to an old-fashioned hat stand, with many small, short side branches on it and a single large bump on top. That is how my own NLX looked, 1.40 to 1.60 metre high with side branches of about 15 centimetres.

They put out very little leafage. This is a characteristic that makes this lady a pleasure to trim. She's a sweet-smeller, with elongated, vast Sativa-buds.

They were hand-watered daily with Canna Coco, which can be used during the growth as well as during the bloom. I also gave them a regular dose of Supervit, and once the bloom period had begun I also applied B'Cuzz bloom stimulator on a daily basis. In addition I gave them each week or two weeks a good dose of enzymes to keep the root life optimal, and thereby keep the whole plant growing optimally. The plants slurped up a good 500 ml of feed water each per day. What was a nice advantage with using coco was that it is impossible to give them too much water. Thanks to this attribute it is also a great medium for beginners to let their seeds germinate on. Coco has the advantage of holding plenty of moisture in, but at the same time it remains good

and dry. Strange, but true – even if you have just given the coco litres of water, it still feels bone dry. This is one of the great strengths of using coco. Do this with soil and I can assure you that over the next few days you will not need (or be able to) give any more feed water. By contrast, with coco you will the very next day have once again a nice dry pot in front of you. So then you'll be able to give another strong feed. With soil you would have to wait another day before it was dry enough for you to be able to give more water. With coco you can feed the very next day, which means you can more easily rectify any deficiencies on coco, plus you can also give much more nutrient – up to twice as much as on soil. This is my experience, at least. Each grow I have undertaken with coco and soil-based plants has given me the same results.

Four weeks' bloom

The NLX had now been blossoming for about four weeks. I have to say that by this stage there were still only very small buds beginning to form on the plants. As things were looking now, I was facing really awful harvest. The

buds on my NLX were also coming way too close to the lamps, which were giving off an immense amount of heat. I'm used to growing K2, which in week four already has such huge buds on them they look as if they are practically ready for harvest. In the case of these NLX, this was quite clearly not the case, and that takes a bit of getting used to. I even stopped giving the plants Supervit and B'Cuzz bloom stimulator

This prompted me to ponder how important it is to always check your lamps regularly and make sure they really are turning on and off at the right time.

in the sixth week of bloom, as I did not want to waste any more of these products, which cost money after all, on plants did not look as if they were going to produce any reasonable yield of buds – at least, so I thought.

Not very long after this, the NLX astounded me by producing the biggest buds I have ever (personally) seen, let alone grown! Really, I had not even dreamed such buds would appear. What had seemed to be heading for a disastrous grow in fact turned into a top harvest. I give all the credit to NLX, a really top plant. This was the first time that I have grown a variety that developed such a super crown bud. So the growth spurt begins from week six to eight. Then the buds develop and increase in size so quickly that before you even know it, you're wrestling with enormous buds under your lamps. NLX really lets her best side be seen only in the last two weeks.



What a cracker.



The coco I used I have had now for more than a year, during which time I have used it three times. There are always nutrient residues left in it, and maybe the coco is all the better for this rather than worse. Who knows? If you ever decide to start a grow on coco yourself it is advisable to start good and early with feeding. In its raw state coco contains no nutrient at all, which is why you need to begin

adding nutrients immediately if you want to get off to a good start with your growth. So don't dilly-dally, as you can when growing on soil, for a week or so in order to begin giving nutrients. Adding enzymes and root stimulator will also help you get off to a good start in the first few days. And once the clones have really begun to take hold and are showing signs of good growth, then immediately start giving fertiliser to your plants. You can start doing this pretty much from the fourth day or even sooner. When re-using coco, and so are using the same coco for the second time, then you should flush the whole lot well through with enzymes, and then you're fine to add the second load of clones to it. The coco now contains a great deal of nutrients, which will give you a good growth start, and you will be able to wait a little longer before adding your first fertiliser.

Furthermore, I'd like to remark that so far I have never managed to over-fertilise coco. This can partly be explained by the drain off that occurs when you add too much feed water. Any excess simply washes away, taking all damaging salts and whatnot. Coco also has a buffering capability by being able to store considerable amounts of nutrient and then release it when it is needed. Altogether, coco seems to be a particularly user-friendly medium. You really have to try your hardest to screw up using it. I even don't bother to use a pH meter or EC meter when growing on coco. It works really well without them, and if something works well, why mess with it?

Super harvest

We are now at the end of the eighth, beginning of the ninth week of blooming. The NLX is ripe and ready for harvesting. The most important moment is upon us. I find it hard to believe that if I now look in my little plantation I'm looking at the same one as four weeks ago, when little buds no bigger than a finger were sitting on the plants. Things can change rapidly, the tide can soon turn, this time in my favour. Each time it gets better and better, I have to say. Every new grow undertaken increases your knowledge. Before you know it you're raising the biggest buds, buds you've only seen in your dreams. And let's not forget: they are your buds! Everyone knows that the sweetest buds are those you've raised yourself. Hahaha, indeed! You'll be walking around with a smile on



NLX has enormous crown buds.



Handy, eh?, these drying racks... Just stack them as high as you want.

your face that would put The Joker from Batman to shame (whose smile evidently comes from a fall into a vat of buds, and if you don't believe me re-hire the movie).

The next few days were really nice and busy. Trimming, trimming and yet more trimming. After I had removed the plants from their grow space I was

yet again struck by their sheer size. They looked totally different out in broad daylight, don't you think? There were more buds on a single plant than I had expected, and all of them - from small to large - were well covered with crystals. After just trimming one plant I had so much resin on my fingers that I could already roll a ball of hash from it. After a bit of time there was so much on my fingers, layer upon layer, that thanks to the sweat on my fingertips it was falling off in lumps. Lovely, fresh hash with a few weed trimmings and the little hearts of the buds mixed in! The NLX really is a snow white. Having seen this variety I now get the full meaning of the saying: 'The plant looks as if a snow storm has blown over it, it's so full of crystals' (something you'll read a lot in seed catalogues).

They literally shot up like green rockets; the launch of the space shuttle had nothing on these babies.

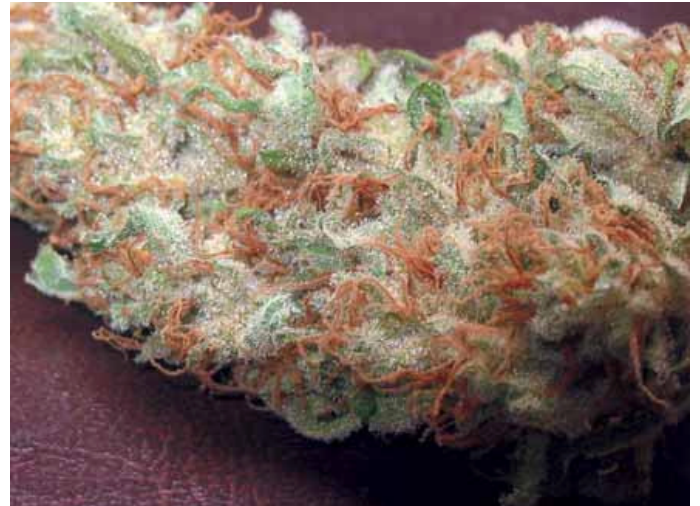
The yield per plant was between 25 to 40 gram, with the majority of the plants somewhere around the 30 gram mark. One significant exception was an 80-gram beauty. All in all, I was very happy with the NLX, and the plants

were a pleasure to trim. I paid a trip to Aliën grow shop in IJzendijke for a few white screens on which the buds could dry, and I found them outstanding! You can stick a whole lot of buds on them and you can stack as many screens on top of each other as you want. After a two week drying period I could finally measure the dry weight: a harvest of 530 grams per 600 watts. Not bad, and totally unexpected. The leaf material

The NLX lets her best side show in the last two weeks.

was as usual kept behind safely and dried out. I plan to make a good water hash out of this, but I'll tell you more about that next time around.

Stay tuned!



A dried NLX bud, ready to be crumbled and consumed. Now there's tasty.

By Kristie Szalanski

Trip

The Funky New GAME for Smokers!



Imagine yourself backpacking through India. Smoke a bit of hash, enjoy the sights, and relax. You could also be sitting on the beach and playing a new card game from Matt & Ash, called Trip, which was

actually conceptualised during visits to India. A cult favourite among travellers, the card game is a loosely organized deck of interesting directions. The categories for cards are: Get High, Ride the Vibes, Eat the Stash, Comedown, and Flashback. You can pretty much imagine the sort of theme of the game, although the emphasis is on smoking, and wonder if it's a bit easier to play after dropping some acid. The Goa trance scene could perhaps support a relaxed afternoon spending hours learning this game, and it's easy to assume that once learned it goes quickly. However, the system of stealing points and halting people's turns can easily be ignored (after all, you are allowed to make your own rules, and this is suggested) in favour of skinning pay. Two to six players are dealt cards, and then expected to decipher the instructions on each card in order to act on them. Red cards earn you points, and "Bad Trip" cards can take these away, green cards let you steal cards from other players, and things like "Mystic Insight" allow you to take someone's hand and return it minus the ones you want. Really, the concept makes sense; it's just a matter of spending some time with friends and plenty of weed, and preparing to laugh at yourselves. Time better spent than avoiding the sunshine! Two friends who like to travel developed the game between 2001 and 2005, and they received a great response with like-minded individuals. Handmade in India, the packs come in unique bags with an instruction sheet and die. Packs can be ordered individually (on eBay!), purchased at Conscious Dreams (Kokopelli), Warmoesstraat Amsterdam, or bought in bulk for retail sale.

Website: www.trippygames.com
E-mail: info@trippygames.com



Stoner Fluxx

A Game About Weed, Freedom, and the Pursuit of Happiness

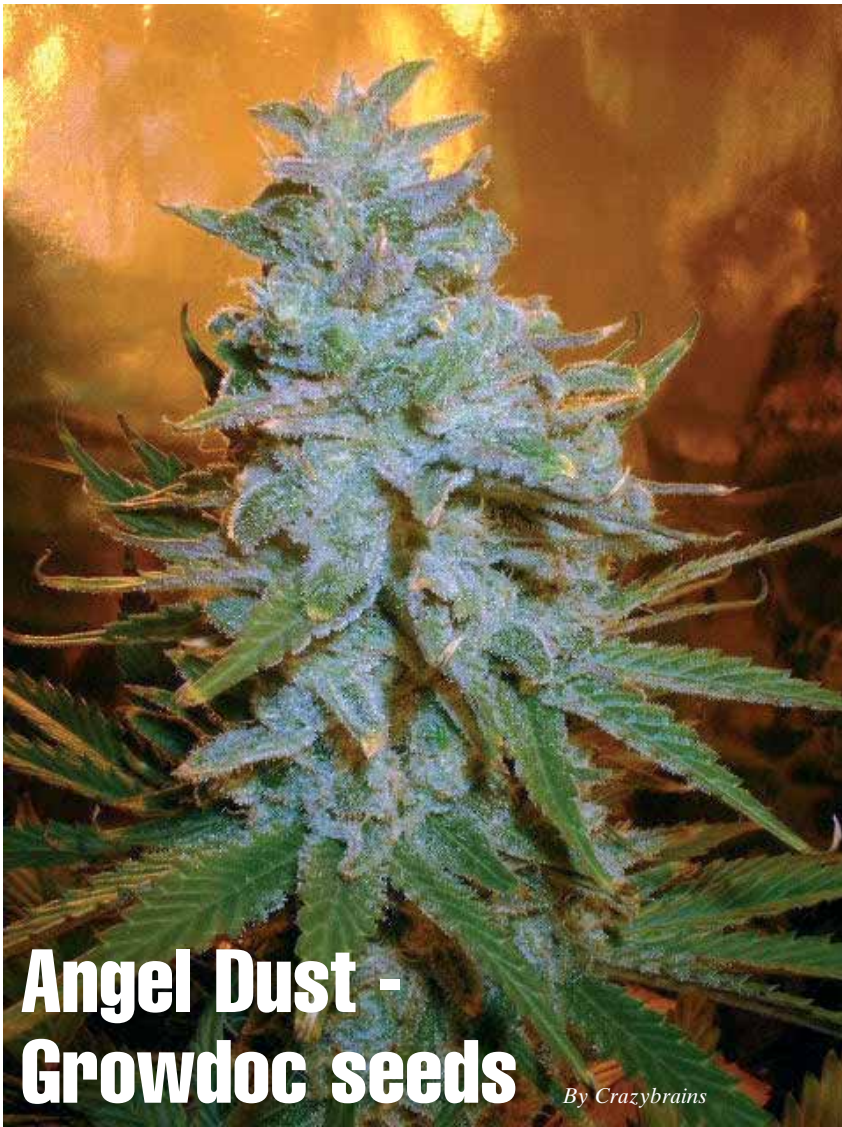
You like to play games? While you're wasting time indoors getting paler and developing your Barry White voice, why not spend some of your stoned sessions playing a card game? If you're on holiday in Amsterdam you can't play normal card games in many coffeeshops due to the link with gambling, so you can whip out a pack of *Stoner Fluxx* cards instead. Chill out in the Vondel Park or along a sunny canal, and smoke yourselves into a frenzy. Think drinking games with instructions, and ganja instead of alcohol. The deck card game was released in 2003 by Looney Labs, a husband and wife team in America who are responsible for loads of addictive games: *Aquarius*, *Chrononauts*, *Icehouse*, *Cosmic Coasters* and *Nanofictionary*, plus many others.

Andrew Looney, the founder of the company, is a bit of a mad scientist who prefers to create captivating games for a living. He previously used his big brain to work developing software for NASA, and now confuses, frustrates, and entertains people of all ages with his popular games. *Stoner Fluxx* is a themed release based on one of their most talked about games, the 3.0 version of *Fluxx*. The crux of *Fluxx* revolves around a principle of constantly changing rules, an idea still central in the green version. Two to six players can deal themselves in at any time, beginning with three cards. Each pack has 84+ cards, and once you're let in on the craze you'll understand that random cards and rules can pop up anywhere on the planet!) The main categories are Actions, Goals, New Rules, and Keepers. Actions relate to the turn at hand and range from "Take!" where the game is paused so everyone can smoke one, to "What were we doing again?" where you reshuffle ALL the cards, including everyone's hand, and re-deal. A particularly annoying card is "Busted!" which leads to the "confiscation" of everyone's ganja-related cards. Goals refer to accumulating Keepers (there's a 'weed' card, a bong, pipe, munchies, etc., but also sneaky hemp facts on the cards representing paper and the flag) and when someone completes a Goal, they win instantly. Cards like this mean the game can last anywhere from two minutes to as long as you can sit up, and because of all the New Rule cards (each player draws four on a turn, smoke on each turn, make someone skip their turn to roll you a joint, etc.) the dimensions are always changing. While the idea is to have fun and hang out with friends, the game's creator is an "outspoken activist for the legalisation of marijuana," and this is evident from even the packaging of the game. Drug war facts and prohibition details are prominent features, and the opening card urges children to outdo Andrew's record of waiting until the age of 30 to try Cannabis for the first time. By the way, the Action cards relating to consumption are all printed with an amusing warning: "Doing what this card says is illegal. Set it aside until after marijuana prohibition ends." The Looneys even donate one dollar per pack sold to a variety of activist groups, including NORML, the Marijuana Policy Project, Media Awareness Project, and Drug Policy Alliance.

You might think that playing a card game with lots of words printed on them would be difficult when stoned, but the setup is extremely to understand. Remember, the game was made for stoners! Cannabis might not be addictive, but *Stoner Fluxx* certainly is. Shuffle the deck, pack the bong, and contribute to some worthy causes while giggling your face off.

Website: www.looneylabs.com More info? Call +1 (301) 441-1019

GAME REVIEWS



Angel Dust - Growdoc seeds

By Crazybrains

Germination

Whether your starting off with cuttings or seeds, a strong and healthy start in life is paramount to a successful final harvest. As we only start with seeds it is important the method we use to germinate them works well. If you ignore my teenage experiments, (trying and failing to procure fine quality herbs, from throwing any old seeds in any old soil), the only method I've used to start seeds off is the paper towel method, so this was the method we used for the AD seeds.

Although I've heard of people having poor results with this method, on average 95% of the seeds we sow from recognised breeders and companies live to become mature individuals. This equates to only 1 seed out of 20 failing to crack open or failing to root.

There were 10 seeds in the packet. They all cracked open after around 48 hours on the towels, which is a good sign of fresh and mature genetic material (seeds). Also they had unusually thick initial roots, possibly the thickest I've seen so far. We planted the seeds into 3.5" round pots, filled with Bio Bizz All Mix; which we continued to use for all stages throughout this crop.

Seedlings/ Vegetative growth

(Our vegetative growth area was made out of a small cupboard lined with Mylar. It housed a 400 Watt Metal Halide lamp, which ran for 18 hours per day; for electrical safety the ballast was propped up on a breezeblock some distance away. There were no input or extraction fans, but to reduce temperatures and create

airflow, the bottom of the Mylar 'door' is left open exposing the plants to a breeze from an oscillating fan.)

We had been aware for sometime by now this growth area was not as productive as it could be. So we evaluated our situation and began to ponder; what were we doing that was wrong? Or, what were other growers doing which we were not, which was right? Well I researched the subject for a while, by reading literature and speaking with people (more knowledgeable than ourselves), and concluded our low production was most likely to be occurring due to at least one of the following factors:

- That the 400 Watt lamp was too intense, and was creating an environment which encourages dwarfed growth.
- That the 400 Watt lamp was too weak, due to it being placed too far from the plants.
- That Bio Bizz All Mix (which we always used), is not the best soil for initial stages of growth, due to it having fairly high levels of nutrients, and therefore it would be better to use their Light Mix or an actual seedling soil; Coco was also mentioned as an alternative.
- Herbs like to grow quickly and vigorously at all times, so to achieve optimal production the plants growth must not be hindered or restricted at any time, or in any area of growth. An element of this which we had long overlooked, was how important the size of the pot is; often we had been repotting at stages when the plants were already root bound, and therefore confining the growth of the overall plant. (Thank you, Jorge C).

- The subject of using a root stimulant was also raised a few times but it seemed debatable; some people claimed there is no need to use one unless your using cuttings, other people thought it would help to build root mass in plants cultivated from cuttings and seeds.

We decided to run some simple tests on these findings. The first variable we decided to test was, a) whether the plants were being 'blinded' initially, by receiving too much light. Rather than do what was generally suggested and buy a new lower wattage bulb or light system; I devised a simple test. This time instead of leaving the seedlings outside the grow area for a few days (to grow a few cm's above the grow medium), I decided we would leave them on the outer perimeter for a longer period of time. I didn't raise the lamp, but there were larger plants still in the growth area, which heavily shaded the young 'AD' plants. I was not sure exactly how much longer were we to leave them outside for; just enough time to observe a general difference I suppose was the plan.

This time we were less fortunate than usual, in so far as, even though all 10 seeds cracked open quickly only 8 managed to root successfully. After the 6th or 7th day growing outside the tent, the plants started to look really elongated (leggy) signalling a lack of light intensity. I could tell they were stretching themselves to reach for the light, however, I remembered how elongated plants can be initially when grown under fairly low intensity sunlight and I let the experiment roll on. But unlike plants grown outside, in the next few days they didn't start to broaden they just continued to grow in height. Around the 10th day, I put them on a box so they would be closer to the lamp and receive a stronger wind from the oscillating fan. By now this was needed to strengthen the very thin, very long, and therefore very weak central stems. By the 14th day, they were 8 of the most elongated plants we have ever grown inside. At this point I stopped the experiment, as it was looking more and more like torture as the days progressed! I decided the plants were not going to develop like plants grown outside in low light intensities, or would take so long to do so it wouldn't be a productive method anyway.

So the results didn't show an improvement in the environment, made clear by the plants growing healthier, larger, or more robustly; instead it gave us evidence of how to encourage the exact opposite, an environment conducive to plants growing in a smaller, slower, weaker, and ultimately therefore in a less healthy way. Clearly, in the first stages of growth you can clearly have too little light as well as too much; it is about finding a balance, not an extremity. This was the only major variable we tested; from this point we treated these plants essentially as we would treat any other plants.

(On future crops we tested putting the lamp much closer than we had been doing previously. We've found much success with placing the lamp to around 100cm for the first week, then lowering it to around 60-70cm for the rest of the growth period).



Isn't she lovely?



Grow 14 days - leggy plants



Last day of grow, first of flower



22 days flowering



Flowering 22 days - could do with 9-12!



Flowering 22 days- under or over nutes



Flowering 34 days

So the larger plants went to the flowering area, and for the first time the AD's got the freedom to roam the growth area and have all its direct light to bathe in. Within a day or two, they stopped growing so rapidly in height and started to broaden. Around the 17th day I noticed some roots coming out of the bottoms of the pots, so I repotted the plants from the 3.5" round pots into 3 litre round pots. When I repotted them, I noticed they had very fat spaghetti like roots; the root masses were not generally larger than usual, but individually were thicker than usual. At this stage I remembered back to when the seeds went into the 3.5" pots originally and how they looked a bit chubby, and figured this strain may have unusually thick individual roots.

For the first 14 days they were given only water, then from the 15th day onwards throughout growth and flowering periods we generally followed the nutrient schedule for Bio Bizz All Mix. I misted them sporadically throughout the growth period with plain water to increase humidity. I hadn't had used the Fish Mix for a long time, so I had forgotten its potential value as a foliar feed. Toward the end of the growth period a couple of the very lower leaves turned yellow, but the rest of the plants exhibited a medium shade of green.

From around the 26th day, from what we could see they were all looking female; as we knew we should initiate flowering soon our anticipation grew –would the flowering room have enough plants? or once again, would the males win the day?. Well a few days later something unfortunate happened; 4 of the 8 ADs developed male pollen sacks. Also, too make things worse; the gap in the flowering room had got even bigger. The males were discarded, and the 4 AD's were moved into the flowering room after 34 days growth. Considering the 34 days consisted of 2 days to germinate, then for a further 12 days they were sat outside being heavily shaded, they only had 22 days real growth. They were small around 6 internodes or 9 inches tall, but above all, they seemed green and healthy.

Flowering

(The flowering area was made from a 2m x 1m, x 2m grow tent, covered in Mylar. It housed 2 x 600 Watt lamps, again with the ballasts placed on breezeblocks on the floor, out of the tent, out of the way. There was a 6" RVK150 A1 fan extracting the hot air out of the top of the tent, and an oscillating fan, which together created a reasonable passive air intake).

As the 4 remaining plants looked female, they were repotted into their final (10 litre) pots on the 1st day of flowering. In the bottom of the pots, I put a layer of clay pebbles. A guy from Bio Bizz recommended this method to me, as a way to get more air to the roots. We tried this method on a few crops the last time being this crop. We stopped for two main reasons, firstly it makes it more difficult to let the roots go though a wet/dry cycle, and secondly the noise of shifting and/or washing them literally is two loud, just think of the sound of grit being



Flowering 37 days- good resin already!



Flowering 42 days



54 days in flower



30 days in flower



8 days in drying



30 days in drying



After 30 days of drying, cured

scattered on a road in winter, or having a drive way re-gravelled – forget repotting silently at 3 am with clay pebbles!

Over the first week the plants took well to the flowering room, and to their new larger pots. They began to grow quickly in height, and their stalks thickened further. Their leaves stayed green and healthy, and were reasonably thick in texture. It appeared as if they had largely recovered from the poor start in life; except for the fact they were smaller than they would have been, they generally looked vigorous.

By the start of the second week, they had all roughly doubled in height and their side branches were filling out further. A nice layer of pistils (white hairs) was developing on the buds, where a light scent could be found. I trimmed off most of the lower buds to maximise the energy given to the top buds. Also in this week a set back occurred; some of the fan (larger) leaves from the lower and even middle sections started turning a lighter shade of green. I had recently read somewhere that Bio Grow can be used as a flowering 'tonic', so I decided to raise the (50/50%) Grow and Fish Mix part of the nutrient solution, from 1 ml per litre to 1.25 ml per litre.

As the plants had grown fairly uniformly, you could now tell the 4 plants were in an area that would of held 9 plants of a similar size. It's always best to have more plants then required and throw the least healthy ones away, so we had timed this crop very poorly indeed.

Around the middle of the third week, the plants were still fairly rapidly turning to a lighter shade of green, so it appeared the increased level of nutrients they had received over the last week had produced little effect. So much so, that I decided that it was severe enough to raise the Grow and Fish Mix again, from 1.25ml per litre to 1.5ml per litre. I Also in this week, I tied the side branches down to open the plants up to more light, in effort to increase the yields. It was a little late this time to bend the central stems down (as they had already hardened), but the side branches were still very pliable. I checked on roots, and it was nice to see again, very thick almost spaghetti like roots had heavily grown through the clay pebbles in the bottom of the pots; but this also indicated 15 litre pots would have been a better final pot size. Toward the end of this week some of the leaves were developing burnt, curled tips, and the plants were still rapidly losing their colour. To our inexperienced eyes this was very confusing, as the plants looked both under fed and over fed at the same time. I guessed we must have over fed them at some stage and under fed them at another. So I watered with plain water a couple of times, and resumed feeding them with Grow and Fish mix at the rate of 1.25 ml per litre.

By the 4th week their stem structure was set, they had all roughly tripled in height and had developed medium side branching. The plants were still uniform, but each ones individual traits (features) were now becoming clearer; there was one a little taller and thinner, one a little shorter and fatter, and the other two

meet somewhere in the middle. They resembled 75% Indica genetics. While readjusting the branches I noticed the first resin glands were developing, and realised so far the plants had little aroma unless you touched the buds, were still only a very light herbal scent could be found.

The 5th week was an unusual week; as for the first time I located insects in our garden. For a few days, I manually and laboriously checked the plants repeatedly, removing these black and green little critters. I did this until no more could be found, and I'm grateful to say they have not returned since. In this week the buds really transformed and looked potentially very good quality. Large amounts of resin had developed almost overnight, and the odd pistil started withering, (turning orange). The overall aroma level had risen slightly but it was still very subtle.

At the start of the 6th week, the buds were formed and covered in resin, but still very immature. Considering their rate of development over the week, at this point they changed pace. From the 35th day onwards the plants slowly matured; their calyxes grew larger and more of their pistils gradually withered away. The layer of resin also increased, along with a pleasant but quite unusual scent. I tested a bud at 42 days, it was very immature but I did feel the effects, which were gentle and calming.

It was at the end of the 9th week (63 days) when I harvested them, trimmed them, then and hung them to dry. So far there had only been a low level of scent unless you disturb/ touch the plants, however at this point this smell went up a fair amount. Within 3 days the first buds were ready to test, they had shrunk in size considerably indicating the plant holds a lot of water. Once they were dry I noticed they could have easily flowered for a week or two longer.

The yield was very modest, which represents our mistakes a lot more than the strain; had we not given them such a poor start and had there been 9 plants like there was the space for, the yield would have been much larger.

Buds

The AD buds are chunky and dense, yet fairly light. They have a medium to high calyx to leaf ratio, and a good layer of resin. The scent is complicated to describe; it's like cleaning agent or fuel, with a mixture of earthy or woody undertones. The taste is similar the scent, but not unpleasant! Above all, the buds have the high quality factor, could be compared with the better strains we've grown.

I found an unusual mix of both physical and cerebral effects with this strain. Physically it was calming but not at all sedating or lethargic, and it never gave me a hangover the next morning. Mentally I found the strain to leave me curious and alert, but always realistically focused. I often smoked it all day, without any change in my levels of motivation or energy, or boredom from repeated use.

Blueberry & Master Kush from Black Label

By The Advanced Beginners

GERMINATION:

There were 10 seeds in each packet; we germinated all 20 in one batch. We used the paper towel method; within 48 hours they had all grown large enough initial shoots to transplant them into the medium. Such quick and high germination rates showed us that there were no major restrictions in our environmental conditions, and (as these remain relatively consistent) that the seeds had very high viability rates. We know this because although we're fairly new to growing, we're also quite unique as we choose to only grow around 99% of the time from seeds. We've had rates as quickly as this, but never really any quicker than this, as we smoke herbs constantly we've quickly have gone through hundreds of seeds!

We planted the seeds into 3.5" round pots filled in a 50/50 mix of Bio Bizz Light Mix and Coco, then placed the seedlings on the perimeter of the grow space. For the next couple of days the pots and vegetative matter of the previous crop heavily shaded them, so they would become accustomed to the intense light they would soon experience.

VEGETATIVE GROWTH:

The vegetative growth area was constructed from a small wardrobe lined with Mylar. Inside the wardrobe we hung a 400-Watt Metal Halide lamp, which ran for 18 hours per day. Outside of the wardrobe we placed an oscillating fan, which was positioned so (when the lamp is lower in the later stages) its airflow directly hit the bulb and shade.

After 2 or 3 days the seedlings had risen above the surface of the medium, grown their cotyledons and had started to produce their first set of leaves. At this stage we moved the plants shading the seedlings into the flowering tent, placed the young seedlings in the wardrobe, and raised the 400w lamp to around 1meter from their tiny tops. Over the next 14 days the plants slowly grew, as we gradually lowered the lamp. It was around this time when the plants and the lamp met, and we began to use the backs of hands to monitor optimum lamp distances. Quite simply placing one of our hands palm down over the top of the plants to feel the heat. With an oscillating fan pointing permanently at the bulb its amazing how much closer you can comfortably position your hand / the lamp.

On the 14th day we repotted from the 3.5" round pots into 3 litre square pot. Over the next week both varieties really transformed, their stems thickened and the lower branches started forming. Their

central stems (when rubbed) smelt of a very pungent cigar like scent, common to Indicas. On the 19th day we noticed the first roots coming through the bottom of the 3 litre pots.

21 days into vegetative growth and the plants were looking great. A very nice scent developed (in the air), which began to worry us slightly as we have taken no preventative measures to combat this in the grow area. Fortunately the scent didn't intensify much beyond the aroma level of strong pot purry within the room our wardrobe was in. We don't generally have this concern because we generally choose strains with high Sativa genetics, which are generally less heavily scented. I remember a Super Skunk crop in a cupboard, which made a large 6 bedroom house reek of *super skunk* – such a lovely smell, such a dangerous one!

Halfway through the third week we began twisting the tops of both varieties to encourage bushy growth patterns. The plants regained their vigour within 24 hours, and we repeated the process twice a week until around 7-10 days into flower.

We decided to move them into the flowering room after 28 days growth, as they were soon to outgrow the size of the wardrobe! They were all 15" – 18" tall and were beginning to grow only upwards as there was no other direction for them to grow in. We were very impressed with both strains rate of growth, when we compared this grow to other attempts we've made in the same area. Also it was a great time for us because we run a perpetual harvest, and this was the first time the change over has been because we needed to move our plants out of the grow area, rather than desired to fill the flowering area. All the way through the growth stage plants were fairly uniform, with no major variations in their traits.

Regarding nutrients we generally kept to the schedule for Bio Bizz light mix. We like their product range as its simple and 100% organic. We used all their liquid products except for their Leaf Coat, and when the schedule stated Bio Grow we mixed it 50 / 50 with Fish mix. We foliar feed with plain water for the first week then a 50/50 mix of Algamic and Fish Mix several times a week.

The only way we diverted from the schedule was rather than start feeding them the 2 ml per litre Bio Grow / Fish Mix at 7 days; we had risen these components gradually starting from 1 ml per litre at 7 days growth, working up to 2 ml per litre at 25 days when they were around 6 / 7 internodes in structure. Also

we didn't raise this component further then 2 ml per litre in the later stages.

FLOWERING



58 days

The flowering area was made from a grow tent covered in Mylar. Inside we hung 2 x 600 Watt HPS lamps, each one covering an area of 1square metre. There was an extractor fan removing air from the room and a large 12" pedestal fan for constant air movement. Like many growers we create passive air intake successfully without a dedicated input fan, simply by leaving the door to the room open when the lamps are running.

While transferring the plants between the two rooms we thoroughly sprayed them with buzz off as a preventive measure. For the first 7 days we choose to put the plants on the perimeter of the flowering room, as the previous crop required a little longer. We appreciate this is not good practise, but we felt it was the best option given the situation. Both varieties stopped growing in height so rapidly and started filling out in width as soon as they were placed into flowering, showing us we had done the right thing by not forcing them to grow upwards any longer. This meant our flowering room was the fullest it's ever been, both square metres and the perimeter as well - let's just say watering from the bottom of the pots became hard work!

By 7 to 8 days the Blueberries had risen a few centimetres in height above the Master Kush, other then this there were no major differences in size or structure. Nether variety had the remarkably thick fan leaves, or dense squat structures characteristic of Indicas. At 9 days the first signs of sex began to show on both varieties, so we repotted 8 of the females from the 3 litre pots into 15 litre pots. The 3 litre pots served us well, with both varieties having nice thick healthy root system. We checked the others every day or so, eventually weeding out 9 males, leaving us with 7 female Blueberries plants and 4 female Master Kush plants. When we repotted them we cut of the lower _ of the bud sites to divert the energy to the top buds (colas).



Blueberry at 70 days

On the 14th day we bent the tops of most of the plants down and tied them to the pots with string. The plan was to roughly overlap the tops of the main stems (the colas), exposing more bud sites on the main stems and canopy underneath. While bending them we applied too much pressure and spilt 2 of the Master Kush plants main stems, which we repaired swiftly by binding string tightly around the break points. We readjusted the tie downs on the 16th day, and it looked like both varieties had filled out and would not grow much further. There was still very little between the two strains in structure, except now the Master Kush plants had regained the height difference and a little extra as (if they were not tied down) they were the tallest of the crop.

Around 21 days into flowering, all the plants had nice thick central stems and medium side branching. A quick check revealed all the plants had grown roots to the bottom of their individual pots. A few bud sites on both varieties had begun to form, but so far we could only tell that the Blueberries were true to form by their leaf and stem structure. We could tell easily by the overall rate of growth and general health that this crop had great harvest potential.

At 28 days into flowering we noticed one of the Blueberries had purple buds, which made for a nice change, as (however aesthetical) it is rare we see this trait in our herbs. On day 30 we noticed all the support strings on both varieties had become unstuck from the sheer strength of the plants growth. We considered tying them down again, but there simply was no room any longer, as the lower branches had grown so much.

Over the next couple of weeks the Blueberries started forming their bud sites abundantly. From this we could tell the Blueberries were all slightly different, exhibiting hybrid vigour and generally great quality. The Master Kush we were a little more concerned with as they were leaving fewer clues, by developing at a much slower rate. We were right (at day 16) to think the Blueberries structures were fairly set, but wrong about the Master Kush. There were 2 basic variations in the Master Kush structure, 1 of them was shorter, wider and denser and the other 3 were taller, with longer internodes. The taller ones stems and branches continued growing their central stems and branches for a good few weeks into flowering exhibiting a fair amount of Sativa in their genetics. If we had to estimate we would say they were 25% or more Sativa.

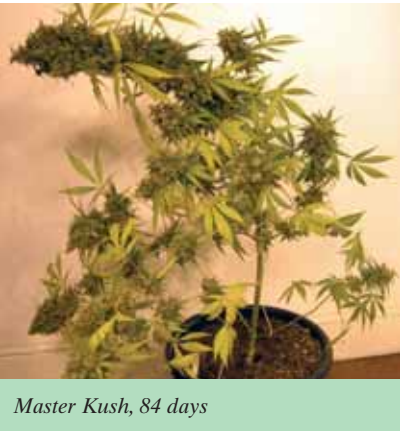


Master Kush at 84 days

On day 43 we harvested the plants (from the previous crop) in the other half of the tent, quicker then could be en expected. This meant we had created a gap, as for the next few weeks we had no plants vegetated large enough to fill the space. So now we had the full 2 square metres to utilize for this crop only designed to fill half that space. To make plants the most uniform they could be while exposing them to the extra light, we moved the 7 Blueberries under one lamp and the 4 Master Kush under the other.

It was around 49 days into flowering when the bud structures of 3 larger Master Kush plants really came alive. Until this point we could not even slightly predict how these plants would finally develop, as we have not grown this strain before. We noticed the shorter Master Kush plant was looking amazing; it was very dense and literally drenched with resin. This was one of the plants that we had to repair after splitting its central stem. The repair job had worked but the string now was suffocating the central stem. We didn't know whether to remove the binding or not, but choose to, as it now seemed unnatural and cruel. The plant had not seemed not to suffer up until this point and stayed healthy after we had removed it, so it would appear little harm was done. Some of the branches on both varieties began to bend downwards due to their excessive weight!

At 63 days into flowering we decided to harvest the top colas of the Blueberries. It seemed logical as the main colas were considerably more mature then the under canopy and blocked much of its light. We hung the colas and they were dry within 5 days.



Master Kush, 84 days

On the 70th day we harvested the rest of the Blueberries, their buds had really developed so we were glad that we left them to flower for the additional week. The plants consisted of lots of branches and medium sized buds. They looked beautiful with purple tints coming though on the most of the plants. The one plant that was totally purple throughout flowering was bright pink when you prized open a fresh bud. Some smelt more fruity or sweet then others, 4 / 5 out of the 7 smelt exceptionally rich. The trimming took much longer then expected, roughly around 30 minutes per plant. The resin barely hit the fan leaves but all the shade and bud leaves were well coated. So we were able to make a nice few joints of scissor hash and a gram or two of great bubble hash. We also harvested the small Master Kush plant on the 70th day.

The last three Master Kush plants began to fall over due to excessive weight around day 70 onwards. We supported their central stems with string tied to the grow tent, but there was little we could do for the lower branches. In the end we harvested these last 3 plants on the 84th day. We could have easily taken them earlier but we prefer our herbs to be fairly mature. The buds had a high flower to leaf ratio so they only took around 5 - 10 minutes per plant.

We don't normally weigh our herbs, but we figured as were writing a report we should give you the facts. The 7 Blueberries weighed 206 g, and the Master Kush 233g (37g of which was the shorter / Indica plant). For many this yields would be moderate for us it was way above average. Allowing the plants spread out with twice and space and light from day 43 onwards we believe must have contributed to our success, other than this would put it down to great quality genetics.

BLUEBERRIES BUDS



Blueberry dried

The Blueberries were made up of medium sized calyxes, with a high resin content. There was some variation in this strain, so the way the buds from each plant looked, felt, smelt, and tasted was slightly different. They were some of the tastiest buds we've smoked in years, sometimes actually leaving a sweet taste in our mouths for a while after we exhaled. The general taste was a very sweet mix of fruits, the purple/pink plant and a couple of the shorter plants stood out in this respect.

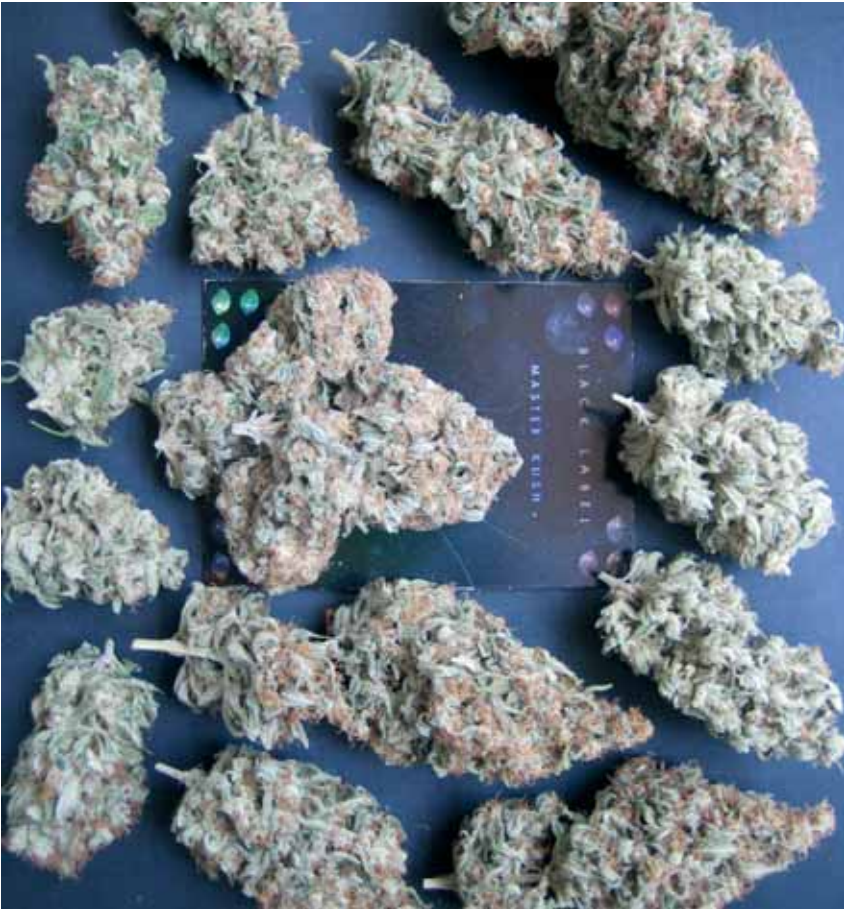
There was not a great deal of difference in their effects. For us it generally fell in to the category of happy effects, pleasing for both the body and mind. This strain has great potential for repeated use, as the effects are fairly long-lived and

each joint takes you *higher*. This means throughout a smoking session the effects build on one another significantly, this also means it's harder to explain its effects as they are greatly different depending on how much you consume in a given period.

In moderate amounts we had cheerful, realistic mental outlooks and a nice smooth bodily feeling. It has elements of euphoria, but at such levels such feeling / thoughts are generally controllable.

In greater amounts in shorter frequencies, we have had the giggles (uncontrolled hysterical laughter), and "shut eye perma grins" (blatant intoxication shown via a permanent "blissed out" / uncontrollable facial expression). Also we have felt physically relaxed to the point of sedation, making it a nice strain to smoke before you intend to fall asleep.

MASTER KUSH BUDS



Master Kush dried

Both variations of the Master Kush had small sized calyxes and medium resin content. Their scents and tastes were a mix of sweet, spicy and skunk blended together. The effect from both the varieties was very similar; it's a fairly powerful stoney effect, that's felt both throughout the body and the mind. .

In regular amounts the body feels relaxed but active. It was slightly stimulating for the mind, but not through taking you on a psychoactive journey, rather through speeding your thoughts up, similar to coffee. But what goes up quickly often comes down in the same manner, so compared with many strains we found the mental effects to be fairly short-lived and easily reached a plateau.

In our case the effects also wore off and tolerance developed to them

much quicker then with the strains physical effects. This made it nice to smoke a little in the morning, as a strong physical base to more mentally inspiring highs throughout the day. In contrast to Blueberries to smoke this though out a whole day we were less content, often reaching for the skins to try to achieve a different or new effect without success. However every time we had little Master Kush circulating in our systems and then smoked a joint we found the effects to be positive and profound.

The Indica variation had a very dense bud structure, and a scent and taste which was slightly spicier than the others. Its effects were similar to the other 3 varieties; it took you a little *higher* a little quicker, and was in our opinion the best of the Master Kush.

Do it on lava By Smiley Grass

The Supernatural Terrapot Brand

What could be easier than sticking a clone in the earth, giving it water and after eight weeks being able to harvest a smokeable plant? Not having to worry about how much manure to give it and what soil mix you have to use is pretty handy for many people, especially for those not blessed with green fingers and only interested in having something decent of their own to smoke. Of course, there are many do-it-yourself and starter-packets on the market, but one in particular caught our notice recently, if only for the fact that the basis of this package consists of real lava. The importers promise that the inexperienced grower can get right to work with it. It is not only user-friendly but the yields promised are incredibly high for a system such as this. The name of this wonder product: the Supernatural Brand Terrapot.



The clones go into the Terrapot, blocks and all

When watching volcanic eruptions on the TV news are you ever struck by how many people chose and still choose to live on the sides of such a fire-spitting mountain? They live and work there because the soil consists mostly of lava from previous eruptions, and offers the ultimate in fertility, guaranteeing high crop yields year after year.

The Egyptians had things a bit easier; no volcanoes and resulting casualties, and yet they still got to enjoy the benefits of volcanic activity. The Nile constantly carried all kinds of minerals and other nutrients with it, including quite regularly lava from the interior of Africa. Already in the distant past the Egyptians planted their crops along the banks of the great, nourishing river. By using an ingenious irrigation system people were able to control the Nile and water their crops with an ebb-and-flow system. At each annual flood the water deposited a layer of fertile silt on the fields. Over the centuries, in this way various mineral-bearing layers were laid down in the soil, with varying compositions. Even today these fields along the Nile are still known as one of the most fertile areas on earth. Terraponics has had specialised laboratories analyse these layers one by one, and with the knowledge they gathered developed the Terrapot.



End result of an indoor grow

The Terrapot is actually not a pot but a bag, that is filled with various layers of lava mixed with baked earth granulates. Each layer also has its own mineral composition, just as is found in nature. In addition to the extensive range of

minerals, there are also two sorts of diatomic earth in it, three different sorts of calcium, Leonardite, humus-rich and naturally acid, hormones and enzymes, organic carbons, volcanic rock, vermiculite and perlite, nutritional vitamin B1 and other vitamins.

In other words, it promises a very rich growth, containing all the right nutrients for a healthy start and development of our plant, thanks to the division into various layers that mean the plant is always able to get hold of all the various nutrients that she needs at each particular moment in the various stages of her development.



Top result!

By creating their own system of nutrients that work in cooperation with the growth medium the natural way that the plant feeds itself is completely optimised. At the same time the exchange of gases that occurs at the root tips is strongly increased. By giving nutrients via a dish system or via an ingenious ebb and flood system from Terraponics itself, there is a sort combination of hydroponic and organic growing methods created. Limiting factors, such as in hydroponics for example, where in the plant roots are robbed both of their natural transpiration process as well as their uptake of colloids (or substances that are finely distributed in a fluid, whereby the particles are larger than a molecule and smaller than those found in a suspension), fall away. Nor do the bags contain any acidic clumps of peat, such as can be found in many soils, so the plants are in no way hindered in their growth.

The layered design of the contents maximises the uptake of nutrients by the way that the lowest roots, which are normally made for going in search of ground water, can get their nutrients out of the perlite at the bottom of the



Here the plants have just been switched over to bags of earth from Bio Henkie

bag. The uppermost roots have to grate along the soil in order to be able to take up the finest particles. On top of that, the medium is so loose that it is hard to give too much water or to over-feed.

Terraponics has attempted to bring stability and balance together in a natural earth/lava medium that has the property of being able to absorb water-soluble nutrients and then make these available to the plant when the conditions dry out. This hybrid approach combining traditional and hydro-growing is not only capable of bringing plants to maturity more quickly, but to raise eventual yields too. In addition to this, you also get to keep the natural organic taste and nutritional value of the original soil-grown crop.

The importer claims even more advantages than just those of unsurpassed results. So the system lowers the production costs, lowers the risks of salt damage, breaks down over-sized nutrients in the medium and prevents poor reproduction. The over-generous use of nutrients in traditional methods is something that can retard root growth and raise the sensitivity to salt stress. It can also interrupt the bloom and ripening stage if the concentrations of nutrients such as zinc and calcium are thrown out of balance. The increased root growth in the bags helps the plants to withstand the stress of drought and heat, along with the potential shock of being re-potted.

The importer further claims that thanks to the plants' strong, healthy leaf cover and stem, spint mites leave them alone, and even that plants already ravaged by spint recover fully when they are transferred into the Terraponics system. Sick plants will recover rapidly and can

still go on to succeed in making great end results.

We have not (yet) been able to check these health claims, but we are provisionally prepared to give the importer the benefit of the doubt. We are also nice and busy with a different way or working with the "wonder" bags from Terraponics. We basically wanted to try once again to grow in the old fashioned (and in the Netherlands, legal) way: with just a couple of plants on our balcony, and saw in the grow method an outstanding way of starting off our weed with a sort of supercharge. Because the system is basically designed for indoor growing with a one-to-two week growth period and we were looking at a Summer with a vegetative growth of 13 weeks, from mid-May to mid-August, it was necessary to drastically alter the feeding scheme. We of course would have had to phone the importer for larger bags (they come in 5, 20 and 30 litre sizes, and we had the 5 litre size) and / or for more nutrient, but in the end we decided to postpone this project until next year.

For this season we got hold of some of the huge 60-litre bags of pre-fertilized organic soil from Bio Henkie. We also planned to go on holiday and the neighbour, who seems to only know anything about insurance and is capable of, at best, giving water. That's why...

At the time this article was written - 17 August 2006 - we had just wrapped three 1.75 metre-high giant bushes, all topped, in black agricultural plastic in order to bring them in to bloom in four days. If the end of the Summer is a lovely as it was last year then we are sitting pretty.

The hot Summer and the Terrapot bags have in any case already given us a very good base on which to work!



Solid, healthy plants thanks to Terrapot, and ready for the bloom period

For more information about the Terrapot bags from Terraponics:

Terraponics Europe
34 The Vintners
Temple Farm Industrial Estate
Southend on Sea
Essex
SS2 5RZ

United Kingdom
T: +44 (0)1702 467555
F: +44 (0)1702 614266

With thanks to Agra Grow
from Apeldoorn, NL

Bilbo's Mega-Buds

Bodybuilding with Cannabis

By Bart B

Some grow weed for their own pleasure while others grow it to make money. Whatever the motivation, the most important thing is the same for all, and that is producing the largest and most potent heads. Also to learn from each crop so as to improve the next and increase the grams. Everyone thinks that their own crop is the best but occasionally you come across someone with a crop to die for. Heads bigger than your forearm, thick as your head and solid as stone. These are extreme cultivation successes and Bilbo takes full responsibility. Bilbo likes to let his plants flourish under extreme light intensity using the logic of light = weight!



You'd swear his plants are secretly working out when they should be sleeping – because these plants resemble baseball bats more than anything and it is hard to imagine that they got that way simply because of excessive light waves. 2L Cola bottles look small in comparison, honest! First impressions are that these plants must be on

steroids, but they have simply been grown in earth. Bilbo points out that you do not necessarily have to use hydroponics to achieve extreme buds. Bilbo has used hydroponics before, but never with these results. Good old earth is still full of surprises!

As a starter, Bilbo had gone wholeheartedly into the whole hype surrounding hydro techniques that ensured sizeable heads. He was working with aeroponics and was hit with a power failure that meant the ruin of his entire crop. After that he returned to solid earth. He was happy to leave all the fuss of pH and EC meters behind him. The stunning success of this particular crop has even Bilbo mystified. It cannot possibly be just the extra light intensity because this is not the first time Bilbo has applied his extra light method to a grow room and those heads had not been on the same scale as these.

For him, the amount of light a seedling is exposed to seems to be of the greatest importance. Seedlings that germinate outdoors are continually exposed to the intensity of the sun and do not suffer any negative effects. On the contrary; they flourish. The first few hours of a seedlings life determine how it will develop later. Bilbo starts hanging his lamps at 1.80m and then slowly brings them closer to give the plants time to adapt to the light intensity.

One in a thousand, unique, exceptional and rare



Out of the countless number of seeds available, Bilbo managed to find this winner – a combination of good genes and plenty of light has resulted in these formidable heads. From a selection of 20 or 30 seeds, he managed to single out this phenomenal plant. He was attracted to this particular plant by the size of the then up and coming buds and was satisfied that he had made a good choice. But then this monster took all the attention by towering up above everything else in the room. Such a special plant is rarely found. This one is a Sweet Tooth 3 from Spiceoflifeseeds and it is tops on their list of quality seeds available. The taste is sublime and reminds one of sweet grapefruits.

It might have even been possible to have produced even heavier heads than these as Bilbo has just used ordinary potting soil from the normal garden centre. With a quality soil mix he might have bumped up his gram total return even more. These plants had enjoyed 4 weeks of growth phase before flowering for 51 days. During growth he gave them 3000 watts and once in flowering they received 6400 watts. He lines the lamps up both vertically and horizontally and all of them have exhausts fitted to them to keep them air-cooled. He also uses CO2 generators that can put his room into 1500 PPM in just under three minutes. A digitised CO2 control gadget then keeps it that way. Every second hour the air in the whole room is changed completely in order to exhaust any gaseous fumes that may have built up. The whole room is constantly regulated by a number of climate controllers. Bilbo claims to make carefully considered use of the CO2 for he notices a big change when he allows the temperature to really soar in the room.

The most important thing to remember is to grow them hard with as much exposure to light as possible, from the moment they are seedlings up until the final harvest.

To obtain results like these, you do have to have a number of factors under scrupulous control and Bilbo does have that. Everything is arranged down to the smallest detail, from climatic regulation to the feeding scheme. It is up to the grower to make optimum use of the intense light and the best way to achieve that is to co-ordinate all the factors involved.

Be aware that bigger is not always better, even though it is human nature to want to improve continually. Bilbo has set the sights really high this time and yet he still wants to push the boundaries again. Fortunately Bilbo is a generous man and naturally wanting to share his joy and good fortune, he made clones from the monster and distributed them amongst some of his fellow farmers so that they too could share in the fun and produce their own extreme pleasure.

I am also invited to join in the pleasure as I was sent a sample of these genes too. My expectations are already running high as I sit impatiently waiting for the flowering phase.

Wishing you all much growing pleasure. Be sure to go nuts – go extreme!

bartb@ganja.com



Fertilizing & feeding: pH/EC/TDS/PPM

What is the difference between PPM and EC?

Total Dissolved Solids (TDS) is the best measurement of the nutrient concentration of a hydroponic solution. To estimate TDS, one can use a meter that measures the Electric Conductivity (EC) of a solution, and convert the number to TDS in parts per million (PPM). Many meters will do this conversion.

Total dissolved solids (TDS) is typically expressed in parts per million (ppm). It is a measurement of mass and determined by weighing, called a gravimetric analysis. A solution of nutrients dissolved in water at a strength of 700 ppm means that there are 700 milligrams of dissolved solids present for every liter of water. To accurately calculate total dissolved solids (TDS), one would evaporate a measured filtered sample to dryness, and weigh the residue. This type of measurement requires accurate liquid measurement, glassware, a drying oven, and a milligram balance. Example: 50 mL of the 700ppm solution would leave 35 mg of salt at the bottom of a crucible after drying.

Electrical Conductivity (EC) is expressed in siemens per centimeter (s/cm) or millisiemens per centimeter (ms/cm). It can be determined with an inexpensive hand held meter. Nutrient ions have an electrical charge, a whole number, usually a positive or negative 1, 2, or 3. EC is a measurement of all those charges in the solution that conduct electricity. The greater the quantity of nutrient ions in a solution, the more electricity that will be conducted by that solution. A material has a conductance of one siemens if one ampere of electric current can pass through it per volt of electric potential. It is the reciprocal of the ohm, the standard unit of electrical resistance. A siemens is also called a mho (ohm backwards).

For convenience, EC measurements often are converted to TDS units (ppm) by the meter.

The meter cannot directly measure TDS as described above, and instead uses a linear conversion factor to calculate it. Everyone's nutrient mix is different, so no factor will be exact. The meter uses an approximate conversion factor, because the exact composition of the mix is not known. Conversion factors range from .50 to .72, *depending on the meter manufacturer, which do a good job of approximating a TDS calculation from the meter's measurement of EC.

All ppm pens actually measure the value based on EC and then convert the EC value to display the ppm value, having different conversion factors between differing manufacturers is why we have this problem communicating

nutrient measurements between one another.

EC is measured in millisiemens per centimeter (ms/cm) or microsiemens per centimeter (us/cm).

One millisiemen = 1000 microsiemens.

EC and CF (Conductivity Factor) are easily converted between each other.
1 ms/cm = 10 CF

"The communication problem"...

So again, the problem is that different ppm pen manufacturers use different

conversion factors to calculate the ppm they display. All ppm (TDS, Total Dissolved Solids) pens actually measure in EC or CF and run a conversion program to display the reading in ppm's.

There are three conversion factors which various manufacturers use for displaying ppm's...

USA 1 ms/cm
(EC 1.0 or CF 10) = 500 ppm
European 1 ms/cm
(EC 1.0 or CF 10) = 640 ppm
Australian 1 ms/cm
(EC 1.0 or CF 10) = 700 ppm

For example:

Hanna, Milwaukee 1 ms/cm
(EC 1.0 or CF 10) = 500 ppm
Eutech 1 ms/cm
(EC 1.0 or CF 10) = 640 ppm
Truncheon 1 ms/cm (EC 1.0 or CF 10) = 700 ppm

Calculating the conversion factor

If your meter allows you to switch between EC and TDS units, your conversion factor can be easily determined by dividing one by the other.

Place the probe in the solution and read TDS in ppm. Change to EC on the meter and read EC in ms/cm.

Conversion factor = ppm / ec.

[Note: ms must be converted to us: One millisiemen = 1000 microsiemens (1.0 ms/cm = 1000.0 us/cm)]

According to the chart below:

1.0 ms/cm = 500 ppm (USA Hanna)
1000 us/cm = 500 ppm

Conversion factor = ppm / (ms/cm * 1000) .50 = 500ppm / (1000us/cm)]

The answer is your meter's conversion factor and should be a number between 0.50 and 0.72 To improve accuracy, take ec and ppm readings from your res daily for about ten days. Average the conversion factors. The more data points that you use, the closer you will be to finding your true conversion factor.

When reporting your PPM, please give the conversion factor your meter uses. For example: 550 PPM @0.7 or give the reading in EC, which should be the same meter to meter.

It may also be advisable to give the starting value of your water; there is a huge difference between RO and distilled water with a PPM of approximately 0 and hard tap water of PPM 300 @.5 (notice the conversion factor so others can work out the EC) or well water with a conductance of 2.1 ms/cm.

A note to Organic Growers:

An EC meter has fewer applications for a soil grower because many organic nutrients are not electrically charged or are inert. Things like Superthrive or Fish Emulsion, blood meal, rock phosphate or green sand cannot be measured with a meter reliably when they are applied or in runoff. Meters can only measure electrically charged salts in solution.

EC	Hanna	Eutech	Truncheon	CF
ms/cm	0.5 ppm	0.64 ppm	0.70 ppm	0
0.1	50 ppm	64 ppm	70 ppm	1
0.2	100 ppm	128 ppm	140 ppm	2
0.3	150 ppm	192 ppm	210 ppm	3
0.4	200 ppm	256 ppm	280 ppm	4
0.5	250 ppm	320 ppm	350 ppm	5
0.6	300 ppm	384 ppm	420 ppm	6
0.7	350 ppm	448 ppm	490 ppm	7
0.8	400 ppm	512 ppm	560 ppm	8
0.9	450 ppm	576 ppm	630 ppm	9
1.0	500 ppm	640 ppm	700 ppm	10
1.1	550 ppm	704 ppm	770 ppm	11
1.2	600 ppm	768 ppm	840 ppm	12
1.3	650 ppm	832 ppm	910 ppm	13
1.4	700 ppm	896 ppm	980 ppm	14
1.5	750 ppm	960 ppm	1050 ppm	15
1.6	800 ppm	1024 ppm	1120 ppm	16
1.7	850 ppm	1088 ppm	1190 ppm	17
1.8	900 ppm	1152 ppm	1260 ppm	18
1.9	950 ppm	1216 ppm	1330 ppm	19
2.0	1000 ppm	1280 ppm	1400 ppm	20
2.1	1050 ppm	1334 ppm	1470 ppm	21
2.2	1100 ppm	1408 ppm	1540 ppm	22
2.3	1150 ppm	1472 ppm	1610 ppm	23
2.4	1200 ppm	1536 ppm	1680 ppm	24
2.5	1250 ppm	1600 ppm	1750 ppm	25
2.6	1300 ppm	1664 ppm	1820 ppm	26
2.7	1350 ppm	1728 ppm	1890 ppm	27
2.8	1400 ppm	1792 ppm	1960 ppm	28
2.9	1450 ppm	1856 ppm	2030 ppm	29
3.0	1500 ppm	1920 ppm	2100 ppm	30
3.1	1550 ppm	1984 ppm	2170 ppm	31
3.2	1600 ppm	2048 ppm	2240 ppm	32

Medieval Herb Gardens

by Lazystrain
Photos: Deirdre Larkin

In this issue we shall look at the cultivation of cannabis/hemp within Medieval Herb Gardens.

Hemp is one of the many names for Cannabis. As a member of the *Cannabaceae* / Hemp family, cannabis comes in a variety of types; some taller, some smaller, some heavier, and some more intoxicating than others. For the sake of this article, I shall make no attempt to distinguish one type of cannabis from another. Neither would I suggest that, the types of cannabis available to medieval herbalists differed from the types of cannabis cultivated for herbal or culinary purposes today. Before continuing, it is also important to remember that the 'Herb Garden' is simply, an area that is dedicated to the cultivation of plants, which hold specific culinary or medicinal usage. This may range from cloister gardens to churchyards and from cottage gardens to manor houses. The herbal properties of certain plants therefore hold social and historical importance, which cannot be overlooked.

Medieval Cannabis

The medieval period within Europe spans a thousand years of social and political change (c.400-1400 AD). A period shadowed by the rise of monasticism (the church) and the ordering of feudal society, as it is known. A world of Arthurian Knights and Merlin type wizards, the Crusades, Franciscan Monks and Magic. The Medieval period is also known as 'the Dark Age' or 'the Middle Ages'. It is a period about which Archaeologists know very little (Historians even less). The history of cannabis during this period is extremely sketchy. Much evidence depends upon the existence of herbal practice and surviving folklore; which together creates a romantic image of the 'herb garden' within medieval Europe.

So at what point did cannabis enter the herb gardens of N. Europe? Who knows? Hempen clothing, rope, and cordage (as I have discussed previously) was something familiar to the European farmer during the Neolithic. Likewise, hashish was a highly valued commodity, which passed along silk-routes from Damascus and beyond. The real question then is this: At what point did the medicinal benefits of cannabis become a feature of medieval life? In this issue, it is this aspect of cannabis cultivation within medieval Europe that I tend to address.

Historical Context

To explore the Medieval Herb Garden in its entirety, we must go beyond the medieval period. Herbology has always been included into ancient systems of medicine. In China the properties of Huo Ma Ren (hemp seed) have been understood for countless centuries.



Practical as well as ornamental, formal herb gardens laid out in simple beds date back to medieval Europe and continue to be popular today, as this contemporary take on a 12th-century garden attests.

Then there is Ayurvedic medicine from India... later there were the Hanging Gardens of Babylon, which require little explanation... and then there are the humoral systems of ancient Greece. The Romans later converted poetry into prose, and herbology within Northern Europe became standard practice. Following the fall of the Roman Empire (and the demise of the Romano villa), both herbology and medicine within N. Europe, became the pastime of Christian Monks. These monks cultivated herbs in the 'Cloister Gardens', which rested alongside the walls of their abbeys, monasteries, and churches. Today, although their herbal use has dwindled, many of these gardens including those of Westminster Abbey and Lincoln Cathedral, still remain.

Now these Monks were far from honest people, in fact they were as corrupt as they could be.

Throughout the 'Dark Ages' knowledge was considered power. (Power that could be wielded in the name of God). Specific knowledge, about certain "things" were kept secret beneath an esoteric system of learning (sometimes referred to as the *Kabbalah*). Many scholars have suggested a direct link between early monasticism and 'alchemical lore'. Alchemy is the practise of turning useless objects into useful "things"; turning base metal into gold, caterpillars into silk, urine into gunpowder (and fertiliser), grapes into wine, and perhaps low-grade cannabis into hashish (?) Without scratching the surface of history too deeply, we cannot help but realise that a monopoly of esoteric tradition (or magic) surrounding herbology begins to form. Why? Because these same European Monks had stumbled across certain herbs that they wished to keep secret. The secret of one of these herbs was Cannabis.

Cloister Gardens

As we have already suggested, there is no such thing as a typical 'Herb Garden'. Gardens are what we make of them. As practical amenities, herb gardens are reflective of society itself. Medieval Herb Gardens were foremost 'formal gardens'. That is, they were designed with architectural, geometric and horticultural principles in mind. Medieval herb gardens were therefore indicative of their time; they were functional, formal and fertile (not to mention potentially one of the best environs in which to grow cannabis).

The Cloisters (courtyard gardens) of many British cathedrals were designed with the express purpose of supplying both the kitchens and the hospitals of monastic orders with a steady supply of herbs. In truth, a lot of the technology (including horticulture) passing around Europe during the medieval period stems from the East and Islam. The features of an Islamic Garden may include elements of sanctuary and shade. By surrounding herb gardens with walkways and buildings, the coolness of stone may be directed into the garden itself (much like a giant intake fan, pushing fresh air onto the plants). Alternatively, the seclusion of stonewalling may act a 'sun-trap' during the daytime and radiate heat throughout the evening.

Another aspect of the cloister garden, which is often overlooked, is that they were revered as places of great tranquility and beauty. People like to look at plants. It is good for their wellbeing and psyche. What better place then to show-off (or seclude) a new species of cannabis, than within a walled garden? Perhaps even, within the walled garden of a church? Interestingly, cloister gardens were called "*psychi gardens*" throughout the Middle



Large formal herb gardens were the domain of monasteries, manor houses, and palaces. Simpler households grew useful plants in unstructured dooryard plantings, where they would be close at hand when needed for cooking and other purposes

Ages, and were revered as places of understanding and wisdom. Seemingly, the practice and ideology of cultivating herbs (including cannabis) had therefore, somehow, re-entered Northern Europe...

[N.B. It is the authors understanding that the Knights Templar possibly introduced cannabis into the cloister gardens of British monasteries following their Crusades in the East (c.1093 – 1291AD).

There is however, at present, little archaeological evidence to support this theory.]

Horticultural Practice

Cannabis is an annual. Resulting progeny from seed may be tall or small, fat or thin. Cannabis plants may be male, female or hermaphrodite. They may show either opposing or alternating phyllotaxy (nodal joints), which in the long term alters their ego. Although they are not woody plants (rather hardy annuals), mature cannabis plants may often display hard-wooded stems.

Medieval herb gardens were well kept, well used and constantly maintained. We know this because little archaeological evidence supporting the existence of herbal plant materials from this period remain (either/or they are all too often overlooked). Hemp seed remains are also infrequent during this period, suggesting that seeds were harvested at source. Several points of notable interest may however be raised. For example, the amenities of a cloister garden may include; a central well, raised beds, wattle fencing, and an extended orchard. All of which were interlined with pathways and access points, so as to make the cultivation and management of the land easier.

Another reason for the lack of archaeological evidence is due to the organic practice of using raised flowerbeds and/or deep bed systems of cultivation. Both of these methods rely upon an annual rejuvenation of the soil. Raised beds generally involve less digging than deep beds and help to prevent a loss of nutrients from the soil (I use this method with potatoes). Deep bed systems, upon the other hand, require large quantities of organic matter in order to ensure that applications of NPK hit the root nodules that need them most. Old or diseased soil may be quickly removed with the raised bed method, whereas new soils can be added to deep beds, making them



Productive gardens remained medieval in character for many centuries, as this recreation of a colonial garden shows. The idea of dividing plants into the "useful" and the "ornamental" is a relatively new development that started in the Renaissance as medicine, botany, and horticulture began to diverge

raised. Either way both methods are 100% organic in practice.

The main sources of fertilizer during the medieval period were urine, manure and compost. Another was fish extract, but I'll come on to that in a minute. Urine contains ammonia. Ammonia nitrates may be applied to plants as a quick-fix source of nitrogen, enough said... Traditionally, the manure of animals was scattered into

soil substrates during the winter. For this reason, sheep/goat (archaeologists can't tell the difference) were kept close to hand (often beside churches and monastery) as a cheap source of manure. Composting is however a serious affair. The facilities to house and feed a large working compost heap would therefore involve a good deal of pre-planning and management. Then there is the issue of the fish. Besides being master herbalists, it is widely known that medieval monks dabbled in aqueous pastimes. They kept fish! Now, those that fish (for fish) will understand that many fish-species including tench, bream and carp (those species introduced into the British Isles by Augustan Monks) thrive upon the taste of pre-boiled hemp seed. More importantly once dead, the heads and tails of fish make excellent plant food. Many organic fertilizers today carry fish extract for this same reason. It would appear that those medieval monks had perfected the 'art of organics' by growing hemp to catch fish and catching fish to grow hemp. In doing so they had entered themselves into an unsigned agreement. As skilled botanists they became knotted to the land. The medieval monk's ability to potentially cultivate cannabis should therefore never be doubted.

Culinary Cannabis Use

The culinary use of cannabis often runs alongside its medicinal properties. Ingestion provides the most effective way of consuming tetrahydrocannabinol (THC) and other complex cannabinoids. The eating of cannabis, is by all accounts, an eastern tradition, (as are the origins of cannabis cultivation itself). For example, *Nasha* (little cakes) made from a hallucinogenic variety of hashish were once infamous throughout central Asia. In India, *Bhang* is 'mixed with milk or alcohol and made into a greenish paste... and baked into cakes or added to butter'. Within Medieval Europe tastes were much blander; the addition of hempen flower and seed to potages and stews, no doubt however figured on the cooks menu, from time to time. Hemp seed oil may also be used for cooking, and within medieval Russia hemp seed was used for making candles and soap. The culinary and domestic properties of cannabis are therefore widespread and well known. Cannabis increases the stimulation of appetite, while hempen seed aids the motion of the bowels. Today many popular recipes may incorporate cannabis seed,

flowers and resins into their ingredients. In fact, the peoples of upland Nepal seek hempen seed as a source of protein during winter. Likewise, bird feed and animal fodder may be supplemented with hemp seed during the winter months. Then there are those fish...I suppose all round, hemp is a tasty dish.

Aromatherapy: Potpourris and Nosegays

Aromatherapy uses essential oils that have been extracted from herbal sources. These oils hold beneficial and therapeutic properties. As poisons, essential oils should not be consumed in their neat form or during pregnancy. Essential oils are administered with the aid of digestion, massage, and inhalation. Alternatively, many herbs may be cut, then dried, then added to potpourris and nosegays. Before the homophobes rip-up this issue of Soft Secrets, a 'nosegay' is the old fashioned name for a small bunch of flowers, which ladies used to pin to their dresses (just in case they came across a funny smell). More recently, in Switzerland cannabis seeds have been cultivated with the intention of producing potpourri (it is claimed). The resulting waste material (trim waste) being marketed as potpourri pillows to medicinal cannabis users.

Medicinal Cannabis Use

When questioning the medicinal benefits of cannabis, the Medieval Herb garden is often a good place to start. Medicinally, cannabis holds many uses; properties that the skilled medieval herbalist sought to learn. The following is extrapolated from 'A History of Herbal Plants' and other invaluable sources: Starting at the root of things, dried hemp root (it is claimed) was prescribed for gout and 'to ally inflammations of the head'. Fresh hemp root, upon the other hand, was mixed with butter and given to those suffering from fire burns and gunpowder wounds. Tinctures of hemp root (both dry and fresh) also help to prevent cystitis and urinary infections, while also easing the pains of childbirth. The stems, which hold little medicinal value, have traditionally always been used as a source of fiber. The flowering heads, besides being smoked, could be crushed (whilst fresh) to extract a juice. This juice (it is claimed) kills parasitic worms in both 'beast and man' and may be used to remove 'earwigs and other living creatures' from the ear

(!) Finally the infused seeds were said to 'relieve the after pains of the mother' and was prescribed as a remedy against respiratory illnesses in children, including colic and dry-cough. In my opinion, it is a shame that the everyday use of these tinctures, tonics and potions have been lost. Someplace, between the doctor's table and the 24hour chemist, the medicinal properties of cannabis have been misplaced and downtrodden (I hope not forgotten!) Today, perhaps it is the reader's role to promote a renaissance of cannabis knowledge, and help spread some light over one of the darkest periods in cannabis history.

Conclusions...

Like I said at the begging of this article, the history of cannabis during the medieval period is extremely sketchy. Splitting fact from fiction, and then allegory from myth, is within the realms of anthropology. Conclusions are therefore the subject of opinion... but I like to view things like this: At some point during the early medieval period herbology became the pastime of some European monks. As master herbalists, they took care over their crops and their crops took care of them. The ideology of 'the herb garden' was planted beneath the cloisters of religion, and from therein propagated into mainstream society. Gradually, through trial and error; trade and knowledge; war and pestilence; the properties of herbal cannabis became a feature of medieval life, particularly within medicine. Whilst the political and economic implications of cannabis use within medieval Europe remain clouded, the social and cultural advantages of cultivating cannabis within herb gardens remains clear.

Herb Gardening

Starting your own herb garden is simple and fun. Many plants hold culinary and medicinal properties. So why not grasp nature by the stalks and plant your own herb garden? Herb gardens can be planted anywhere; in specially designed gardens, in containers, window boxes, pots, and/or simply dotted

about an existing flower garden. Many species of wild herb such as dandelion, nettle and dog rose can be grown alongside cultivated herbs such as, basil, rocket and marijuana. Many herbs love the idea of companion planting, and so little botanical knowledge is required, in order to achieve success. Medicinal strains of cannabis (which naturally flower early) may however hold longevity over many annual species. For this reason, it is often a good idea to include some evergreen herbs into the herb garden. These may include lavender, rosemary and bay. These plants will not only seclude your plants from prevailing conditions, but will also provide you with a source of herbs throughout winter.

Whilst formal gardens look nice, the best herb gardens are often those that consist of a few flowerpots; placed in a sunny position about the garden. This way each herb is treated as an individual and may be pest-controlled, managed and harvested with relative ease. I know of many people that grow herbs for culinary pleasure, and as many again that grow herbs outdoors because they can! This is the sort of freedom that herb gardening allows. It is also worth remembering that many herbs provide a 'cut and come again' option, allowing growers to harvest particular flowering shoots as and when required. Perhaps the real beauty of the herb garden is that it is one of those areas in life that tends for itself. Herb gardens are neither expensive nor time consuming, since at the end of the day, they rely upon good old soil and the sun. If you haven't tried it, but are thinking about it, why not give it a go? You never know you may be surprised with the results.

Whilst I cannot condone the planting of *Cannabaceae* within herb gardens, I can suggest that the addition of ANY medicinal herb, into ANY garden, can only serve to shed light unto plants, about which ignorance is thick and knowledge thin! The addition of cannabis into the herb garden therefore adds another medicinal quality to the herbologists basket, whilst providing people with a direct link to their medieval past.

Did you know that your packaged weed turns out for the best if it can be regularly ventilated? In this way you can prevent your weed becoming too sour, and so it keeps its quality much better.



Outdoor Soil in the UK

For the outdoor gardener the ecology of soil cannot be overlooked. Soil is everywhere and surrounds us all. Briefly I shall outline the geophysical, climatic and environmental factors that influence soil type within the British Isles.

By LazyStrain



Microclimate has a direct influence over the plant-life that a soil site may potentially support

Geology

The transitory nature of the British Isles means that the visible landscape is ever changing. Dynamical geology concerns the nature of these changes. Structural geology studies the result of these changes upon the Earth's structure. Both disciplines are of paramount importance to the soil scientist, since she/he studies the relationships that occur between the nebula and the atomic. As the symbiotic link between bedrock and vegetation, soil acts as the fabric within which, mineral deposits and living organisms coexist. Geomorphic stratification within the British Isles did not happen overnight. Geological processes were some 25 million years in the making; a gradual process fashioned by the climate to create the rawest features within the visible landscape. To quickly generalize there are three major rock types in the British Isles. These are **igneous rock** (magma), **metamorphic rock** (deformation), and **sedimentary rock** (accumulation). Soil type is directly related to the underlying bedrock of a particular landscape.

Climate

The British climate is extremely temperamental. Where it is raining one day, it will be sunny the next. Average annual rainfall across the British Isles is 41inch, although periods of drought, exceeding 14 days without rainfall, are not uncommon. Areas in the West of the isles are generally wetter than areas

in the East (which are sheltered from the Irish Sea and the Atlantic Ocean). In general winter temperatures are milder in the southwest, whereas summer temperatures are higher in the southeast. The 'North Atlantic Drift' maintains this fluctuation in climate by creating a gulf of warm air in winter. Ground frosts may however occur in southern Britain as late as the end of April, and it isn't unheard-of for it to snow in May and June.

Winter frosts play an important role in breaking down organic matter within cultivated soils. Likewise they help to control harmful soil organism and pests, including bacteria. Spring showers

species and fungi. All things considered, it is not surprising that the climate plays a major role in determining local soil conditions.

Soil profile and formation

Soil profile depends upon four major factors: parent rock type, climate, vegetation/ fauna, and soil age. When combined these factors constitute a soils overall formation or makeup. Soil formation is governed by a number of extra components including; available minerals, organic matter, living organisms, water and air. Soil structure is further determined by the constitutional components of sand, silt and clay, in varying parts.

The organic matter in soil derives from plant material and animal material (including manure) that is fresh, rotting, or decayed. Humus is also found in organic matter, although it's often difficult to identify.

bring soils to 'full capacity'; when all gravitational water has been removed and water-drainage has stopped. Soils are at this stage holding the maximum amount of water possible. Summer conditions reverse this process by drying soil, cracking its surface, and allowing air to penetrate the soil structure itself. Autumn winds blow leaves and other organic debris back into the soil, therefore adding to the constant cycle of decay and renewal. The mild climate of autumn also gives rise to a host of anaerobic soil activity, including those of primitive alga

Sandy soils contain large mineral particles and do not absorb water. For this reason sandy soils are drought prone, free draining and cold in winter. These soils are easily cultivated, but have a poor structure, poor nutrient holding abilities and are naturally infertile due to an absence of organic matter and available nutrients. Theoretically, silt is the sediment deposited by rivers and seas. In horticultural terms however, **silty soils** sit partway between sand and clay.

Therefore relative amounts of sand and clay constitute silt soils (which are often described as loam).

Clay soils contain small mineral particles and are water retentive. Clay soils are therefore drought resistant, glue-like in character, and slow to warm in spring. These soils are difficult to cultivate and are easily compacted; yet they have a stable structure when dry. The negatively charged surfaces of clay particles do however hold positively charged plant foods, which are freely available under certain conditions.

Calcareous soils that are based on either chalk or limestone bedrock are alkaline, free draining, and sometimes prone to drought. Due to their distinctive character and natural fertility these soils were cultivated by early agriculturists. Large quantities of organic matter are however required in order to keep these soils in good condition.

Peaty soils are presented in two types, Sphagnum moss peat and sedge peat. These soils are rich in organic matter, low in pH and high in available N (nitrogen). Fenland peat (a sedge peat), once drained and cultivated becomes excellent soil.

Organic matter

The organic matter in soil derives from plant material and animal material (including manure) that is fresh, rotting, or decayed. Humus is also found in organic matter, although its indistinguishable (almost jelly-like) character means that it is often difficult to identify. Organic matter provides soil with a source of nutrients, which are later made available to plants. These nutrients are gradually released when organic matter breaks down. The bacterial activity within soil is dramatically improved with increased levels of organic matter because bacteria live in and eat upon organic debris. Likewise, in frequently cultivated soil, organic matter decomposes quicker due to increased levels of oxygen. This is because oxygen directly aids the aerobic bacteria within soil. In this way there is a close relationship between organic matter and soil life activity itself.

To measure the organic matter level of a soil, a soil sample is first weighed. Then burnt in a muffle furnace. The weight lost equates to the amount of organic matter present. The typical range of organic matter content in soils in the British Isles varies dramatically depending upon landscape. This difference may be between 5% (normal soil) and 40% (peat bog). In general however, soil structure can always be improved via the introduction of increased amounts of organic matter (in the form of compost). As a rough guide the darker the coloration of a soil, the greater its ability to hold plant foods. These darker soils also warm quicker in spring.

Soil acidity and crop tolerance

The tolerance of crops to particular pH's depends upon the soil type and the relative availability of plant foods.

In other words, soil condition is the most important factor in determining a plant's 'ability' to either fail or succeed within any given environ. Successive generations of plants may however adapt to the specific acidity or alkalinity of a particular location. But generally speaking most plants prefer a pH that is relatively neutral. However the availability of ALL major nutrients is increased when an acid soil is limed. This alone, accounts for the biggest benefit derived from liming soil.



An intensive commitment to the earth reaps its own rewards

Until you've really got your hands dirty, conducted your own soil experiments, smelt your own compost, and generally had fun with muck, you haven't lived.

Plants requiring medium pH (5.5 to 6.5) such as wild carrots, raspberry and rose indicate a preference for having originated in habitats of this particular soil pH. Soils with a lower pH (4.0 to 5.5) may often support *Calcicoles* (lime loving plants) that require a higher pH (6.0- 7.5), whereas in contrast, soils with a high pH are never suited to *Calcifuges* (lime hating plants).

The pH preferences of common native species may be used as a rough guide to identifying the pH of a particular soil. Acid loving *Calcifuges* include; Birch, Bog myrtle, Wild cherry, Heather, Rowan and Scots pine. Alkaline loving *Calcicoles*, on the other hand, include Alder, Crab apple, Elder, Hawthorn, Whitebeam and Yew. When several of these species are found in one location, there is a strong likelihood that the soil pH is similar to that preferred by these same plants. Thus an area containing Crab apple, Dogwood, Elder and Yew will have a soil pH around 7.5. A quick observation of the local landscape will therefore give you an approximate idea about the surrounding soil pH.

Soil alterations and amendments

Every now and then you will be required to make alterations and amendments to soil sites. Basically, reasonable quantities of organic matter are needed in order to keep most soils well maintained and healthy. Under sandy soil conditions, for example, large amounts of organic matter can help prevent erosion by binding sand particles together. In contrast, under hydromorphic conditions the addition of sand to clay soil will aid drainage and make cultivation easier.

One of the most valuable sources of organic matter available is manure. When adding manure to a soil site it is always advisable to use old manure that

is well rotted. If possible avoid adding lots of straw alongside the manure, since this often has a negative effect upon the soil structure and takes several years to decompose. Manures should be applied at least six months prior to planting. The only exception to this rule is the use of powdered guano and guano tea. Guano may be applied to soil sites as and when required. The use of rabbit manure (which is available anywhere there are rabbits) can also be extremely beneficial early on during the growing season. Both manure and guano applications, are however, in the long term, short lived. Whilst manure and guano do add some structure and nutrient content to outdoor soils, their major disadvantage is that amendments are only ever temporary, and available nutrients are easily leached.

Green manures, on the other hand, are rich in available nitrates and hold for a long time in soil substrates. Legume crops are often cultivated with the express purpose of being worked back into the soil. This does two things. Firstly, it

enriches the soil structure. Secondly, once decomposed legume crops encourage symbiotic organisms (*rhizobia*). Wild cultigens that directly fix nitrates back into the soil include nettles (dead/hemp/stinging) and clover. It is also worth noting that non-legumes (those with high amounts of carbon) consume nitrogen in large amounts. As companion plants such species should be avoided!

Soil sterilization or 'pasteurization' is another option, although the use of chemicals such as Basamid and Methyl Bromide, must be seriously balanced against the natural ecology of a given environ (not to mention their effect upon the ozone!). Another method of sterilization involves steam heating soil to 65c, but for obvious reasons this is impractical on a large scale. Interestingly a release of nitrates takes place in the period following sterilization. Beneficial soil organisms are also given the chance to compete with (and take over from) harmful organisms during this time. The disadvantages of soil sterilization are however plain to see. Sterilization results in a major loss of beneficial bacteria, fungi and insects, all of which contribute to the individual morphology of a particular soil. Root toxins are also released which without aeration is damaging to plant life.

Perhaps the best way to aid both the structure and the nutrient content of a pre-existing soil site is to add compost. Composting is free and non-time consuming (not to mention an environmentally friendly and ecological way of revitalizing old soil). Suitable composts may be purchased from the local garden center, but the dedicated horticulturist prefers to make his or her own. The secret to composting is to 'layer' the ingredients evenly. A little bit of kitchen waste one day, some grass cuttings the next. Then some shedded-paper, some old indoor soil, hedge-clippings, pistachio

shells, some kitchen waste, and so on. In about a year's time the compost will have a rich texture and will be ready for use.

A note on weeds and rhizobia

A weed is a plant that grows in the wrong place or where it is not wanted. Weeds take nutrients from soil in large quantities and may suffocate surrounding plants with their extensive root systems. They compete for light and underground water. Several weed species play alternative host to a plethora of local pests and diseases. The presence of weed seed in soil may also lower the quality of a crop. On the plus side however, many weed species such as singing nettles, gouch grass and clover, encourage beneficial soil bacteria, most notably rhizobia. Rhizobia particularly invade the root nodules of legume plants; directly fixing nitrogen compounds into soils in exchange for plant sugars. These beneficial soil bacteria convert ammonia into nitrate and require the following conditions: air, warmth, organic matter and moisture. Interestingly, many nitrogen-based fertilizers contain ammonia, which is in turn converted into nitrate and made available to plants.

Choosing a site

When choosing a planting site, there are several issues that need to be considered. Firstly, What are the local soil conditions? How easy will the land be to cultivate and manage? Is the site situated in a suitable location? Secondly, What are the local microclimatic conditions? Microclimate has a direct influence over the plant-life that a soil site may potentially support. For this reason it is always advisable to avoid areas that are exposed to prevailing winds, hydromorphic (wet) soils, and areas that are prone to drought. Thirdly, we should consider the local flora that surrounds a site. Is the surrounding vegetation evergreen or deciduous? Are nearby crops annual, if so when are they harvested? Which noticeable features within the landscape are seasonal and which are not? All of these questions must be addressed prior to planting.

Finally, we must reflect upon the impact of our own activity upon the immediate landscape. As conscious ecologists it is

important that people keep peace with nature; which includes minimizing any interference with local flora and fauna. Extensive systems of cultivation often have a negative effect upon the ecology of everything, including soil. For this reason, less is often more in the long term. The smart horticulturalist therefore balances the availability of materials against the pace of nature itself. They do not challenge nature. Rather they challenge their own ability to adapt to the prevailing conditions, and succeed, because nature always wins.

The best way to obtain a detailed analysis report of a particular soil site is to contact an agricultural college or specializing university. If you provide a soil sample, alongside an accurate account of the samples' origin, most soil scientists will happily conduct analysis for free, since this adds depth to their personal study. Remember to be polite (and discerning) if you expect results.

Final thoughts

At first glance the subject of soil science is a dull one. But until you've really got your hands dirty, conducted your own soil experiments, smelt your own compost, and generally had fun with muck, you haven't lived. If you see a child playing with soil, one thing is immediately apparent. The fact that they are happy getting messy. I suppose it is during these early years that some people develop a fascination about soil; the way it breathes, drinks, swells and then contracts. For some people it is the 'magic' of soil-life itself, the cosmology of invertebrate and bacteria that keep everything in flow with nature. For others, it is simply a medium in which plants grow.

Once we begin to understand the complex geophysical relationships that occur between bedrock and soil structure, between soil structure and plant life, we begin to understand the function of soil ecology itself. As horticulturalist, an intensive commitment to the earth reaps its own rewards: broadening our botanical knowledge, crafting our culture, fueling our imagination. In the long term, this adds an immeasurable sense of depth to our outdoor horizons.

Soft Secrets' Sedimentation Test

A simple 'Sedimentation Test' can provide very accurate measurements of soil particle size by calculating the time taken for particles to settle through a given depth of water. Thereafter an 'approximate' measurement of the constitutional components of sand silt and clay present in a specific soil sample may be judged.

To conduct a 'Sedimentation Test', take a jam jar and measure 5cm from the base upward, marking the jar at every 1cm with a pen. Then fill the jar with 5cm of local soil (you may need to sieve the soil a little first). Fill the rest of the jar with water and stand it on the side for 10 minutes. Place a lid on the jar and shake vigorously for 2-3 minutes. Stand again and watch what happens.

Remember sand particles are largest so they will settle first. Silt particles, which are marble shaped, will settle later just above the finest layer of sand. Clay particles will be held in suspension. Organic material floats to the water surface. After 20 minutes or so, you can then measure the relative parts of sand and silt (1cm = 20% approx.) Clay particles and organic matter represent the remaining percentage between them.

This is a low-tech test, but it is surprising how many reputable horticulturists apply this method to their 'high-science'. The major benefit of the 'Sedimentation Test' is that it can provide the outdoor horticulturist (and the backwoods-person) with the opportunity to conduct quick 'field-tests' over many different soil sites.

Safety

Building growing rooms and installing all the proper equipment can be a time consuming matter. People not always think about safety. As a result, accidents happen, varying from a little current surge to a visit from the local fire brigade. That is why you have to pay major attention to the aspects of safety!

Accidents

Every year serious accidents with electricity happen at growing-rooms. Globally these accidents can be divided into:

- accidents by flying sparks
 - accidents by exploding technical equipment
 - accidents by electrocution
- Often flying sparks are seen at unjust use of technical equipment, short-circuit or a loose contact.

The exploding of technical equipment appear if the technical equipment is not used properly. The electricity develops such high temperatures, that a part of the equipment or the explosive matters in its neighbourhood catch fire. The explosion often happens when the sparks are confronted with an explosive gas mixture. Electrocution is the result of the contact with electricity. The seriousness of the accident depends on the current intensity, and the duration of the surge. Since in growing rooms the current intensity is very high, the accidents are rather serious. The body, particularly the heart, doesn't really like alternating current.

This information is important because with this knowledge severe accidents can often be prevented. The serious grower can limit the dangers of electrocution by carpeting his growing room wall-to-wall and always wear

shoes with rubber soles, working with electricity. The serious grower has to take the habit to check the growing room and its surrounds regularly for loose switches and wall plugs and repair it immediately, after first putting out the electricity. An earth leakage circuit breaker takes care of the disconnection of the electricity in case of short circuit.

Regulations

The regulations of the installation are very important, because they concern the electric parts that the grower works on, namely:

- the grid
- the low-voltage apparatus
- the meter cupboard
- the wires
- the sockets and light-points

Always think about the general safety regulations when you are installing technical equipment. Because many of the technical equipment are from overseas, the instructions differ a lot. Ask always for a good and understandable instructions for use.

Humidity

Because of the fact that humidity plays an important role at the growing-room it is highly important that all equipment, wiring and sockets are connected with an earth leakage circuit breaker. Also it is recommendable to install the sockets



and the switches outside the growing-room, as much as possible choose water-resistant wiring and lead them over the ceiling or the walls.

If you want to drill into the walls, think about the fact that there can be wiring within them. These wires are hard to be found, without special equipment. If you do not have this, always look for little irregularities in the walls, or try by knocking on the walls to hear where the wires are.

Wires

Like in an earlier article is reported, choice of the wires if of great importance for the safety. Many growers still use improvised extension cords, by, for instance, fitting a plug to both sides of a wire to connect two extension cords together. This is very amateurish and gives a great risk to short-circuit. So again the tip is to ask for advice at the better growshop at the buy of wires if you are not sure about what you exactly need. Besides it is of big importance that when you apply wires, the isolation

must be kept as much as possible around the wire. That means that the copper wires within may not lay nakedly in any case. Sounds logic but unfortunately (too) many accidents happen because of this. Another advise against is the fitting of an ordinary plug to a socket with earth connection. Better is to change an ordinary plug to a plug with earth connection.

Lamps and relays

Always choose for a set of lamps with a fuse or a safe starter. In case of short circuit it can save you for a lot of troubles. When you start a lot of lamps with a time switch it is important to put on the lamps step-by-step. On the moment you switch on the light a lamp uses much more current than that is indicated on the lamps (till 10 times as much!). The contact in the time switch can burn with the effect that the lamps will not turn off again, or in the most unfavourable case a blaze occurs. This can be overcome with a relay that replaces the contacts of the time switch and takes care of the fact that the contacts of a time switch are not overloaded by the switching on of the lamps. In another why it is not really safe to screw a relay against the wall of the growing room because the relays often make a lot of noise at switching and may walls conduct sound very well. It is advisable to hang a relay at an rubber elastic. May growshops nowadays sell pre-assembled equipment.

General tips

Maybe many of the risks I described are not applicable on you, but fact is that almost everyone has had an electrical shock and there are still too many accidents in the growing-rooms that are connected with electricity. That is why I give you the following tips:

- always switch off the electricity when you work with it
- keep to the regulations, ask for professional advice or ask for an installer
- take care for dry hands and isolating shoes
- be careful and use your common sense!

© Highlife



SOAPS ARE FOR DOPES!

THE SOFT SECRETS HEALTH WARNING! AND CURE: GROW YOUR OWN!

By by Fraser Clark, our roving Access All Levels reporter.

Although I refer to those ubiquitous 250 gram slabs known as "Soap Bars," I equally include the soft black gunk called "Squiggy", "Affy" or "Pakki Black."

DO YOU SMOKE COFFEE WITH YOUR HASH?

In his book, *Hashish*, Robert Connell Clarke (no relation, nor does my name have an E - unless you're offering!) includes a section on Soap Bars, "a low-grade quality Moroccan hash, available only in Spain and the UK"

He maintains they're being made from "only a very small percentage of resin glands (pollen), and up to 90% non-resin cannabis plant material." Because this mixture is so powdery, he says, they're "bound together with bee's wax or pine resin." Next, because it's still too green, it's coloured with "instant coffee or henna to give it that sandy brown colour!" And finally, to make it appear more "resiny" (and to mask the taste) turpentine is added.

So put that so-called "joint" down and pay attention!

LIKE THE MAN SAID, IT'S ALL IN THE MIX!

Under license from the Home Office, the UK Medicinal Cannabis Project is being conducted by GW Pharmaceuticals, a US company set up by entrepreneurial pot aficionados and 'experts' to supply government approved medical marijuana to various world governments. Word is it's a hot property!

They too have been analysing the impurities in Soap Bars, whose reputation has long been little better than a 'noxious substance', tolerated because nothing else was available. I'll explain later why that's

not entirely accurate, but listen, *ARE YOU SITTING DOWN?* Their findings are bad news:

Even the *better* 250 gram soap bars contain less than 10 grams of pollen (resin glands) 200 grams of ground-up shake leaf "various noxious substances"

OTHER INGREDIENTS: glue, colouring agents, ground coffee, beeswax, boot polish, animal turds, henna (an old friend!), condensed milk and milk powder, carcinogenic solvents like Toluene and Benzene, and many other "possibly DEADLY chemicals"! It doesn't mention nettles but that's one of the classic, ancient 'fillers'.

Plus, of course, to boost the high, there can be: ketamine crystal, speed, crushed aspirin (this can fool you the first smoke!), barbiturates, tranquillisers and other pills.

The Cannabis Resin Impurities Survey Project (CRISP) is collecting 'soap' stories about unpleasant side-effects: interviewees speak of it being mixed with rubber, plastic, diesel, soil, molasses, ghee, and other vegetable matter.

They conclude that such "polluters" are turning a highly beneficial plant product into a health-destroyer, that Soap Bars should never be legalised, and they recommend "linking the gradually developing awareness of 'soap bar' quality with the recent increase in the home cultivation of cannabis plants."

WHICH IS WHERE THE SOFT SECRETS CURE COMES IN: *START GROWING YOUR OWN - FOR FUN, HEALTH AND PROFIT!*

Soap bar 'hash' costs £1,500 a kilo. £5 an eighth - that's *cheaper* than it's been since 1972! And it also means the dealers can be doubling their money!

BUT NOT ALL SOAP BARS ARE DIRTY!

What Science has to offer is worth paying attention to. But there's another side to the story..

Visit a Moroccan farm and you'll see the genesis of the "soap bar." It literally used to mean (and still means in the Rif Mountains) "Second Shake" or "Third Shake". First shake sees the pot plants swirled gently through a fine gauze. Very little pure pollen is produced this way, say 15 grams per kilo, and it used to be set aside for the farmer himself, or to sell or offer to the local pasha. Nobody else could afford it

Then they start to hit the stuff softly with their hands or a stick so more pollen is knocked loose and the leaves start to break up. I have a theory that, because the Rif Mountains are so low, most of the pollen remains melted into the leaves and stems (in icy Afghan mountains the pollen crystals shake off easily) So this brown green Second Mix contains a fair amount of pollen. Finally they smash the remains until masses of powdered grass leaves and even morsels of branch come through: Third Shake.

Now both those forms have been coming into Britain since at least the 1960s, and all variations between. AND THEY STILL ARE! Hence the range of prices that were and are still available. "Only 10% pollen" sounds terrible, but if the rest is grass, well, what's so wrong with that!

HERE'S WHAT I THINK HAPPENED

When Rave exploded across Britain, hundreds of thousands of new smokers suddenly entered the hash market. They weren't like the dying but probably stable market of "hippy" puffers, supplied by 2nd/3rd shakes and dealers who 'believed' in their product.

These young thrill seekers wanted to explore shamanic highs knew little about the stuff

vastly outnumbered the old-tyme smokers and their local dealers

At this point many used car salesmen started supplying the ravers, nationwide, some definitely e-heads, but followed sharply by criminal gangs simply following the money.. The Dirty Soap Bar was born!

Nowadays, I reckon, 90% of British hash smokers get Soap Bars, more or less cut. The other 10% (confined to London and smaller scenes in the other big cities) continue to be supplied with yer old Second and Third shakes. Which are more expensive, naturally, because they're uncut since they left Morocco.

SO HOW CAN YOU TELL A CLEAN SOAP FROM A DIRTY ONE?!

Even my long-term '60s dealer friends confess how professional the Soap Stars have become. Even *they* can't always rely on touch, smell and so on, nor even a first puff. The *only* sure way these days, they tell me, is to smoke it for a couple of days. This definitely works, if you're sensitive. One thing I've noticed - all by themselves, my fingers start crumbling in more!

But there's one other secret code breaker I'm going to pass on. With smell, if you just sniff it, what are you comparing to? Other inferior hashes? Instead, by making the following *direct* comparison, a difference can become instantly obvious!

Slightly heat a corner of the block, enough to release the odour but not great wafts of smoke. As you sniff with full attention, imagine it's a perfume you're going to apply to the favourite part of your favourite girlfriend. 2nd and even 3rd shakes will smell sweet, 'natural', pungent and really quite nice - for an evening. Soapbar, in this context, smells like, a condom, or a recently cleaned garage. Ughh.



The experiences of an amateur grower

Spice of life: Winter

By Bart B.

Just enjoying a good smoke during the cold winter days. The good harvest I had just gathered had done me proud and was enough to see me through the whole winter. Lovely fat buds bulging with resin had been well dried, slowly over three weeks in fairly warm air (between 15-20 degrees Celsius). Every time we smoked a bud we were hit with the impression of just how good and strong a self-grown weed can be. Let's not forget either how lovely it was to watch the ladies grow up and come into bloom. All my efforts had been well rewarded.

Just as an outdoor grower waits until the last frost is over and the temperature has begun to rise once again in order to put his plants outside to begin growing (and eventually to harvest) a big old lady, so too I began to tremble with anticipation when the temperature began to rise once more. It was just as if I had awoken from a winter hibernation and was coming back to life. This time I also had the intention of building a growing space outdoors. For anyone who is a bit handy, this has got to be one of the nicest things you can do: make your own grow cupboard in order to pluck its fruits later. Some growers even stick real jewels in them. I don't go for the most beautiful cupboard but the cheapest that is still good enough for growing a top quality harvest in.

In the early spring I turned up at the nearest DIY shop to get all the materials I would need. I got everything for under 25 Euros. I built a frame with the measurements 1m x 1.80m x 1.5m. As a base I used several large, cheap wooden plates and covered everything with black-white plastic. All this was built on one sunny spring day, enjoying the sunshine with a good fat spliff hanging out of my mouth. The most important aspect of the project was to make sure it was light-tight, and I made real sure no light could get in. The growing cupboard sat under a shed, safe from wind and rain. On the uppermost side of my cupboard, I installed the filter, protruding like a chimney from a house. On one side there were three tubes through which the fresh air came in. On the straight tubes a bend was added to make sure no light would creep in.

Inside, the lamp was hung, along with a swivelling ventilator placed in the corner. Everything was made as safe and secure as possible, making especially sure that no water could come into contact with the electrical apparatuses. Everything looked good, and then...

The luxury of choice <<vet>>

Variety is the spice of life. That is to say, a good change in what we smoke is welcome. In keeping with this, I had the plan this time to grow a range of varieties so that I would not be left smoking the same stuff the whole time. Also, there were some varieties I just fancied trying and I hadn't been able to get hold of them as clones, so I had no choice but to raise them from seeds.

The biggest harvest it would not be, but this time I would not be going for the best harvest but simply for many varieties of quality weed.

I had already researched and made my

choices during the cold winter months and ordered the seeds on the Net. A week after placing my order my seeds arrived, so well hidden that I couldn't find them. This particular seed merchant had a special trick to deliver the seeds in as unobtrusive way as possible. Obviously I can't reveal how exactly here, but I can say that you were to deliver the package to a police station, they would never suspect there was anything like seeds stashed in it. At first I thought that I'd been the victim of a rip off and there were no seeds sent, until I sent them an email describing the situation. Their reply made me feel stupid but delighted at the same time. It is so easy to spot, but if you don't pay attention you'll never find the seeds. My order consisted of Blueberry, Bubblegum, KC Brains, Leda Uno, Jack Herer, K2 & Skunk 1.

The Blueberry and the Bubblegum especially I was really looking forward to trying, having heard so much about them. The Leda Uno really blew me away because it was the most powerful plant in the whole garden and shot up like a tower in a very short time.

The shame about seeds is that there is so much variation between one and another that it has to be a great coincidence or you have to be just plain lucky to find that special plant that fulfils all your requirements in terms of taste, yield and smell. I was well chuffed to find a Blueberry that really did smell of blueberries - and I did - only it was a male, which was kind of a let down.

By contrast was the Bubblegum, which most of the plants I had did indeed have the typical chewing gum smell. It is really incredible how these plants smell of that white chewing gum. And the typical taste too is really unique and extremely sweet. These were both 'must have' varieties as far as I was concerned. The Jack Herer needs little to be said about it; everyone knows it's a quality plant. The K2 was back as a clone, a Powerplant (also a clone) and to round off, a good Skunk #1, which was bound to be a heavy-yielder.

A good start is half the battle

The pots were filled and the seeds were planted, having been germinated in a small dish of waterlogged kitchen towel kept on a warming mat. These little mats are really handy as they keep a constant temperature 20-22 degrees and are therefore perfect for letting seeds germinate on. Certainly when you let your seeds germinate when it's still pretty cold outside, you can spare having to keep your central heating on 24-hours-a-day - that's a waste of energy. Much cheaper to just use one of these mats that



At age 15, in Belgium, Bart B. decided he'd been landed with low-quality herb too many times! His life mission became to be self-sufficient. After growing and smoking his own herb for a couple of years, he found his body was slowly mutating: he was growing a green thumb! "I'll do my best to continue to bring informative grow stories and related articles to my fellow urban farmers, puffers and breeders, wherever they are on this planet. I hope deep in my heart that eventually you can and will grow your own Monsterbuds too. And never forget: it all starts from seed!"

can stay at a good 20 degrees all day and night. At least, that's what I think.

So the 20 seeds were planted first and ten clones joined them a little later. This time around I had chosen to use high quality earth and went for a good, airy earth from a grow shop. I did notice a great deal of difference between the ordinary earth you get from a normal garden centre and that from a grow shop.

Because I had built a smaller growing space and no longer had a large area to grow in, I decided I could best use some climate control. It was really easy to keep the air moisture content very high during the first few weeks for the growth phase. I have never seen plants grow as fast as then. Within the shortest time the seedlings had grown into little ladies with strong side branches. The clones too shot up and very quickly built up their root systems.

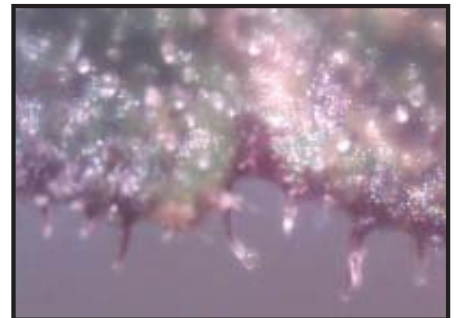
I gave every plant a dose of root stimulator, naturally. The first time I grew it took my seedlings a week to get going, but this time, thanks to the high air moisture, only a few days.

So you can see how everything you learn you can use the next time you grow in order to get a better harvest. Thanks to the rapid growth I let them sprout only for a week-and-a-half before I put them into bloom.

Everything seemed to be going according to plan and was looking perfect. Now all I had to do was hope that I got a good number of females, since with seed you never can tell, though if you maintain a good climate you raise the chance of females. Some factors can influence the seed and tip the balance in favour of females. A high air moisture makes for a greater >>



Blueberry in blooming phase



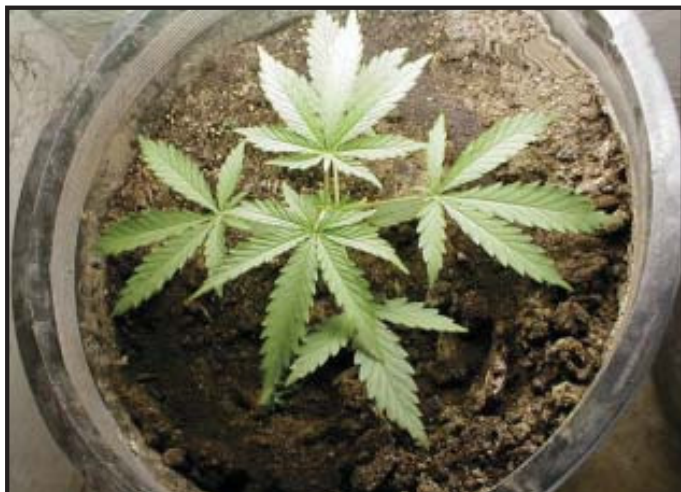
Blueberry in 60x close up



Blueberry bud



More BB buds, ready to smoke



BB 5 weeks old

chance of females, as does a raised nitrogen content in the soil, a lower temperature and several more...

To my amazement I turned up with 17 females out of 20. This was very good and most unexpected, maybe also a bit of bad luck because I had expected more males and can never find it in my heart to throw away females. The excess of females I simply put outside and left them to grow in peace.

In order to ensure that the clones became as big as the seed plants, which normally are a little higher, I had planted the clones in coconut fibre. On this, they shoot up a little higher into the air than when grown in earth, and so they can catch up the seed plants. It is very hard to raise the various varieties all at the same time and still make sure that they end up the same height. Especially if you've got Sativas and Indicas growing together you can be handed some nerve-wracking developments.

Whenever I made a Sativa a head shorter, the Jack Herer for example, then it still ended up shooting up again sometime later. With the Leda Uno I had the same problem – it just wouldn't stay small. It was hideous trying during the growth phase to keep everything nicely bowed and tied up. Every day coming back to see if there were more branches needing bending and whether the already bent branches needed bending a little more and if so, in which direction.

Bending is simply guiding a branch to grow down by holding the tip of the branch down with string. By doing this you put a brake on the growth and allow the lower branches to develop a little better. You can of course just decapitate the plant, but then you lose the head bud; in this way you get to keep it and still allow the under-most branches to develop better. Of course it is more work, but you will be rewarded in the end. I don't think in retrospect I will try and grow so many varieties together at the same time again. Each to its own square meter is the best way.

Despite the drawbacks, you also have the positive side of the mix of wonderful sweet aromas from the various varieties. It was a real mini-Paradise. So much

choice is nice, and the tasting at the end even better. Also great to see of course was the difference in growth patterns and how each plant blooms in a different way to the others and how each bud looks different to the others.

The Bubblegum bloomed with these enormous oblong buds I had never seen before, even the lowermost buds had a huge size. The Blueberry had lovely, hard, round buds, gorgeous in shape. Because it had become a real jungle I had to take out a few plants to give the others more space in which to develop. The

I did notice a great deal of difference between the ordinary earth you get from a normal garden centre and that from a grow shop

thing I learned here is that a plant really does need sufficient room to grow and bloom. If you limit a plant's space by putting too many other plants around it too tightly in your growing cupboard then you will end up getting less out of that plant because it can not develop sufficiently. I certainly felt this with my harvests. I had still left too many standing and in place of them developing their width, they simply grew too high, which ensured that I had more long, skinny plants.

By the time I realised this, the damage was already done and I had no choice than to go with what I'd got; I'll do better next time, I always say. You could clearly see the difference between them and the plants that did get enough space. These plants had the loveliest buds of all and were much more broadly spaced out than the others.

Thanks to the continuous input of fresh air and CO₂, very attractive buds developed on the branches of my plant. There is an advantage you have as a grower when you live in or near a city. Thanks to the many cars, factories, and industrial sites there is more CO₂ in the atmosphere than if you lived out in the sticks. Thanks to this your plants will grow significantly better and develop larger buds. So actually if you ventilate well and get plenty of air and fresh CO₂ flowing through your cupboard you will get a top harvest. Some growers in industrial areas simply ventilate well



Jack Herer

rather than giving extra CO₂ from bottles. Now you're not going to hear me say that the automatic, controlled addition of CO₂ from bottles in to your space is no good, but the cheapest option is still to make good use of the higher CO₂ values of the polluted city air. Good ventilation is one

of the most important and cheapest ways of scoring yourself a good harvest. However many wonder potions you use, if you don't ensure good ventilation you will never get the maximum out of your plants.

Harvesting, trying and enjoying

Because I now have everything I need to raise and harvest a crop, I have no need to go to a grow shop. Apart from the struggle to keep the plants growing at the same height, things went pretty smoothly. No phosphate deficiency, no lamp came crashing down or other such accident. Thanks to the variety of weed, the harvest was spread out and not all bunched up at the same time, since each had its specific blooming period. This had its advantages in that I could trim away with no pressure with no need to do a huge pile in one go. At the end of it all, I collected up all the trim waste and made a superb water hash. This was a particularly delicious hashish since it had such a mixture of varieties mixed in.

After having dried out all the varieties came the best bit of all, the tasting. Each weed has its own character and it was a real party to smoke them all at the same time.

Although I did not achieve a huge harvest from any single weed, I did have a reasonable harvest from all of them. It is nice to have a choice and not have to smoke the same stuff every time. Having

a choice is a luxury. Just laying them all out and sorting through them by shape and appearance is fun. The most stoned I have ever been was when we once made a cocktail of seven different varieties rolled into one fat joint.

After half an hour we were so languid we were almost asleep, so it's definitely not an experiment I would recommend if you're hoping to go out, because you won't be moving at all!

This time of course I also had some outdoor plants; the few seed plants from indoors I had left over and had stuck outside to give those left inside more room, and the four K2 clones that didn't work out. With some time these too began to shoot up like rockets under the intense sunlight.

They were stood in seven litre pots of coconut fibre that looked marvellous to me, but more of those next time.

Get Cultivated!

WHY did my plant die? **WHAT'S** making my plant yellow? **GET YOUR CULTIVATION QUESTIONS ANSWERED NOW!** When should I start feeding my plants? How do I take clones? Soft Secrets' continuing mission to blossom your gardening skills and weed out your growing headaches goes to the next step! Just ask our highly skilled expert Bart B. ANY cultivation question and our new section Get Cultivated! will provide the ANSWER! **WHERE & HOW** do I set up an aquaponic hydroponic system? **HOW** do I maximise my yield in the shortest possible time? In no time you'll be trouble-free and running your garden as a truly cultivated expert!

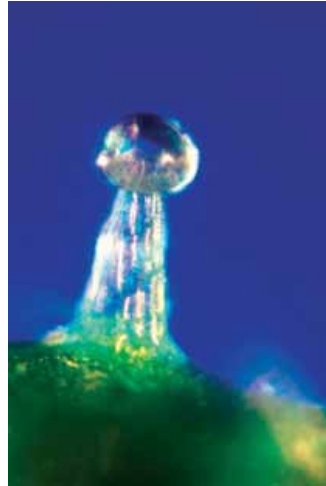
SEND YOUR QUESTIONS TO:
barth@ganja.com

The Green House THC photo study

Pictures from a high space

Anybody who likes the cannabis has seen endless beautiful plant pictures on a variety of magazines, websites and friend's albums. But the most amazing part of the cannabis plant, the resin, inspired a Dutch photographer to take a step forward and start taking pictures of glands and trichomes.

Text: Green House Seed Co. // Photography: Joop Dumay aka the Crystalman



Being in need of high quality strains for his work, Joop started working with Arjan, the owner and founder of the Green House Seed Company and Coffeeshops of Amsterdam. During a period of 10 months, between September 2004 and June 2005, the Green House Seed Company has conquered a new milestone in cannabis photography. Together with Joop Dumay, one of the world leading experts in microphotography, Arjan completed the first micro-photography study on resin development on a complete range of sativa and indica plants. For the first time ever, the

of the feedings to each individual plant guaranteed that the trichomes developed at their maximum potential.

Regular flushing with a light pH and EC solution guaranteed that no salt residues would accumulate in the medium, ensuring the maximum resin production. Every week samples of the flowers were taken, freshly cut from the branches of each selected plant, and then transported to the photo-lab facilities of Joop Dumay for the photo session. Here Joop photographed the trichomes and glandular trichomes, using a

It was found that a difference of just one week in the harvest time can change both the flavor and the high in a significant way.

microscopic world of trichomes and THC glands is visible in its shiny brightness of mushroom-like shapes; a multitude of different and colors reflected and magnified by the trichomes of the amazing cannabis plant, as never seen before.

The photo-study includes all 11 strains on the 2005 Green House Seed Company catalog, with each strain being photographed weekly, starting from the fourth week of flowering down to the harvest. Thanks to a close cooperation between the Green House Seed Company and Joop Dumay, also known as the Crystalman, for the first time a seed bank can document the THC development on all its strains. The study has been realized in a completely controlled environment, growing all the plants in the ideal conditions for each particular strain. The plants were grown in big containers using rockwool flakes as medium. A strict monitoring

professional camera mounted on an optical microscope. The images are magnified 1200 times. By adding different pigments to the Petra dishes (small glass trays used to hold the samples), Joop the Crystalman enhances the clearness or opaqueness of the THC glands, revealing all their beauty. The colors used to enhance the visibility of the THC glands produce no alteration in the clarity of the picture, while rendering the details in all their complexity.

The result is an amazing overview at the spectacular world of glands and trichomes forming the cannabis resin, the physical representation of a jungle of forms and shapes that remind of surreal landscapes. Besides being wonderful pictures to look at, these shots give the grower the chance to really understand the development and decay of cannabinoids, offering a unique tool to get the right moment to harvest.

During the fourth and fifth week the glands are very clear and transparent, with shorter stems. As the plants get ripe, the glands become bigger, some of them beginning to lose clarity and beginning to look opaque and mat. This means the THC acid is degrading into other cannabinoids, mostly CBN and CBG. The glands that have a shiny "see-through" kind of look are composed mostly of THC. The glands that look mat and grey are made of other cannabinoids, mostly CBD, CBN and CBG.

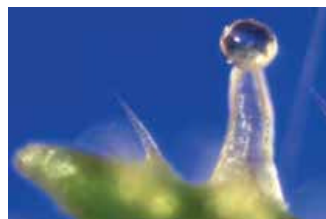
Naturally, new trichomes are produced until the last week of flowering, creating a balance between clear and mat glands, the same kind of balance seen between red and white hairs on the mature buds. The accurate grower can look at the glands and decide the right moment to harvest to obtain a balanced high in the final product. At the same time the taste and aroma of the buds are strictly linked to the degree of THC degradation in the flowers. When the plant is ripening and the THC is degrading in other cannabinoids the flavor and aroma of the flowers will sweeten and become more round and full bodied.

There is no difference in the way glandular trichomes develop on indica and sativa plants.

The study also gave the opportunity to test the smoke from the different strain samples harvested at different stages of maturation; it was found that a difference of just one week in the harvest time can change both the flavor and the high in a significant way. The growers that have the possibility to experiment can try to harvest at different stages to determine the "peak moment" of a particular strain. If a strong indica is harvested one week earlier, the effect will be slightly more mental and less heavy on the body. On the contrary, harvesting the plant one week past the optimal maturation stage will give a really sweet and heavy smoke, with a more narcotic and stoned effect.

Different conclusions were drawn from this study; between them the facts that there is no difference in the way glandular trichomes develop on indica and sativa plants. Both look the same and develop in the same manner. Another conclusion was the confirmation that THC is just one of the many elements acting in synergy with many other cannabinoids. The interaction between the different cannabinoids is the key to further investigate the effect of the cannabis resin.

The work of art of Joop the Crystalman and the great genetics of Arjan's collection made this unique photographic study possible. The rest is the magic of nature.



Trimming weed: *By Jan Sennema*

Are machines taking over?

Typical Dutch forms of cottage industry - such as shelling prawns and peeling flower bulbs - have, with the expansion of the growing of Nederweed, been joined by a new small-scale manual task: the trimming of cannabis buds. Trimming, also known as manicuring, is the general term for the processing of the product before it is dried out. The task of the trimmer is to remove branches and large leaves and to then style the buds into the neat and crystal-dusted buds that we know from the coffee shop. Until quite recently this was an activity that was done with classic hand scissors. But, as has been the case with so many manual skills, mechanisation has struck a blow to tradition. The fully hand-operated scissors are being replaced by mechanical trimming shears and cutting machines like the Kermit, The Aardvark and the Canna Cutter. Soft Secrets trains the spotlight on a little-known aspect of the cannabis economy.

The Kermit trimming machine



He reckons the trend is for growers to make decreasing use of an old-fashioned trimming team made up of friends and acquaintances. Frank reckons that: "Trimmers will always be a risk for growers, but if you only use one of them, then that risk remains limited. Many growers nowadays work together to spread their risk by sharing the costs of setting up a growing space. That they then work as in the old days - by setting a pair of

this is an unnecessary precaution, since trimmers, despite the large profits that are being made, are often not paid too well, the inclination towards loyalty to the grower can be limited. The harvested plants are often packed in boxes for transport to the trimming location, especially by the larger operations, sometimes they are placed in buckets of water to prevent their premature drying out. For a space with 20 to 30 lamps the harvest can be processed by six trimmers working with scissors in two to three days. Usually one trimmer removes the largest leaves and cuts the stems into manageable lengths that can then be more easily manicured by the more experienced trimmers. Plants are usually trimmed while wet, since it can be harder to trim a neat bud with dried plants. At the end of the

Although trimmers are pretty low down in the cannabis hierarchy, they do have more power than you might assume at first glance.

housewives to trim the lot - is becoming increasingly common. If you have two or three regular trimmers at your disposal who you can really trust, then these risks can be kept well in hand. The fewer people who know about your operation the better." Frank asks 100 Euros per hour, versus 5, 10 occasionally as high as 20 Euros for an individual trimmer using scissors. According to him, the trim machine is not only considerably faster than old-fashioned scissors, but it also allows for much more precise manicuring. The drawback is the noise the machine makes (thanks to the necessary vacuum cleaner suction), but that can be overcome by choosing a trimming room in which a bit of noise will not be noticed. Others choose to wear ear plugs, attach the vacuum suction to a long hose and put it in a separate room, or make sure it is placed in a sound-proofed box. Although small grow operations tend to have the growing space and the trimming room under the same roof, among larger growers the trimming room is generally at another location. This is because although the transport of many kilos of fresh hemp to the trimming room is not without risk thanks to the powerful stench given off, the risk is still always preferable to allowing the trimming team to become aware of the growing location. And don't assume that

day it is the method used for drying which determines in which way the trimming will be done: those who choose to let the branches dry out upside down leave the buds on the branches, while those who use a drying cupboard tend to remove the buds completely in order to get a more economical distribution of them over the sieves in the drying room. This room, where the trimmed material begins its last phase before distribution, is then set up in the same building.

Earning a crust

As always, when a new technology reduces the role of the human by reducing work costs, the introduction of mechanical trimming tools has been met with resistance by those who see their ability to earn a crust threatened: the trimmers. And although trimmers are pretty low down in the cannabis hierarchy, they do have more power than you might assume at first glance. Henri has been trimming for years, but has had to give up recently thanks to RSI (Repetitive Strain Injury). He was part of a steady team of trimmers who worked for two employers. They all used the old-fashioned scissors. According to a number of people who we spoke to in making this article, many growers know



Trimming the old fashioned way

As many old-timers will testify, back in 'the day' trimming was above all a happy activity, one in which groups of family and friends would relax in a festive atmosphere while preparing the freshly gathered harvest for drying. A little music, a joint or two, just shooting the breeze...

But since the stakes of the game were raised - I'm talking about the steady increase in scale of growing operations and the increased detection efforts of the upholders of the law - this bucolic picture has slowly changed.

It is not only the time-is-money principle that is responsible for this. The trimmer forms an indispensable link in the production of weed and hash, but at the same time he is also a huge security risk. Growers are completely at the mercy of loose-lipped trimmers, and the trimmers of course are fully aware of this. That's why you always see adverts in the (Dutch)

trade press placed by trimmers offering their services the word 'discretion' so prominently displayed. Because when you're bringing in a harvest worth tens of thousands of Euros, the last thing you want is to bring into the tent as a trimmer is an incorrigible blabbermouth or a vengeful troublemaker. In order to minimise the risks involved, sometimes growers will go to the lengths of taking their trimmers to the site in a bus with the windows blacked-out - since what you don't know, you can't gossip about.

Trimmers often do their work in regular teams who stay together, on location, sometimes they work in mobile trimming rooms, such as old buses with no windows in them. There are also independent trimmers who work in a fixed location to which growers bring their raw product for processing. There are few 'incidents', as trust in one's fellow man tends to be a little lower among growers than among the general population.

Trend

Frank has been in the cannabis scene for years now, mostly as a grower and as a middleman. To earn a bit extra on the side he offers out his services as a trimmer. To help him he has acquired a trimming machine which he takes to his various work locations. "The time of the trimming scissors is over," states Frank. "With the trimming machine I can handle about 160 plants in three hours. If you want to reproduce that speed using traditional shears, you would need three or four trimmers working together. Then they all want something different to eat and drink: it all adds up to a load of hassle that you can do without."



Trimming tackle at the Interpolm grow shop (Amsterdam): in the background is a box with rubber gloves and cleaning materials for shears and hands, in the foreground (left) pruning shears for thicker branches, to the right of which are regular shears.

absolutely nothing about how to trim. And some trimmers take grateful advantage of that knowledge. "The man who we worked for once brought a trim machine in with him," says Henri. "He had hired it from a grow shop. 'Give this a try' he says. Well, of course we did not like the look of this, but fair enough, if the boss we've got to do it, then we were willing to give it a whirl. Naturally, we raked away with the thing. The buds we ended up with of course looked like shit and when the boss saw this, he had immediately had his fill with trimming machines." Another retarding factor in the mass switch over to mechanical trimming has been the clients themselves. As every grow shop can testify, growers are often quite conservative



No bolshiness, no gossiping: Kermit at work

and do not find it easy to switch over to new methods of doing things. That applies to the tried and trusted growing techniques, but also for the manner in which the end product is trimmed. Despite the mechanical revolution it is still widely the case that growers get themselves a pair of friendly ladies and set them down at the trimming table. It is also increasingly popular (in Holland at least) to make up a trimming gang from foreigners working here illegally. Poles especially are popular, even if they do need to have a sharp eye kept on them thanks to the huge temptation that they are exposed to in the presence of the green gold. The advantage is the low wages that such workers are content with. When the decision has been taken to step over to mechanical trimming, then the client is generally sneakily aiming to avoid paying the same rate per trimmed weight as he did with the old-fashioned hand trimming, or to pay by the kilo rather than by the hour. At least he also gets to enjoy the significant shortening of the time it takes for him to get the trimming phase done and behind him.

Ergonomics

Many growers prefer to use people as trimmers who personally do not smoke, so as to minimise the temptation to them to slip a few buds into their bags. A drawback to this practice is that non-smoking trimmers react badly to the sometimes overwhelming powerful aroma of fresh buds. You can even get stoned from it, according to the stories. This is bollocks, according to the earlier quoted Frank. "You simply cannot get stoned from the aroma of the weed; you have to have THC in your blood supply, otherwise you will not notice any effect. And this just doesn't happen through your nose." Nevertheless, there is frequently a (portable) carbon filter-fitted air extractor installed in the trimming room – though not primarily for the benefit of the trimmers. The most important reason for this is to keep the location secret, because it happens quite



Making the same monotonous movements with the same hand, hour after hour, not infrequently produces pains – and these can lead to the eventual burnout of the trimmer.



frequently that growing activities are discovered at the very last stage thanks to the smell. Other aids found in the trimming room include rubber gloves, which prevent trimmers' fingers becoming all gooey with sticky hairs in just a few minutes, trimming overalls and various cleaning fluids for the removal of said sticky stuff.

As well as the economic aspect of mechanical trimming there is also a strong argument in favour of trimming machines: the ergonomics. Trimming with the traditional scissors is still generally considered to be the most accurate trimming technique, but has the drawback that it takes longer and trimmers need regular breaks from it. More importantly for the trimmer (and eventually for the

client) is the heavy strain on the muscles and tendons of the hand. Making the same monotonous movements with the same hand, hour after hour, not infrequently produces pains – and these can lead to the eventual burnout of the trimmer. Thanks to the variety of movements that using trim machines make possible, this risk is reduced with their use.

Alternatives

Already by the beginning of the 1990s the first trim machines had appeared on the market. The Canadian *Power Clipper* was in all probability the first, a by present standards rather primitive and rather dangerous tool that was imported

from Canada by the Pollinator Company. Switzerland made a play for the market with the *Stripper* and the *Hanf Turbo Cleaner*. All these machines made use of a vacuum cleaner that served to draw the leaf material towards the blade and then remove the trimmed waste and trap it somehow for eventual making into hashish. In the meantime there have been a number of alternatives made available, and these have often elaborated on the principles used in these first trimming machines. Glawill produces the *Kermit* trim machine, that's available in two versions, the first with a single cutting head, the second equipped with two. 'Kermit keeps on trimming, he doesn't smoke, moan or chatter!', says the company in its promotional material. Housed in a robust metal casing is a shaft inside of which is a rotating drill. Via the opening in the shaft the bud is drawn along the drill, on which the rough covering leaves are snipped off and the connected vacuum cleaner sucks away the leaf waste. This can be used later for making skuff or water hash. By varying the suction power, even the smallest buds can be processed. For anyone not producing on an industrial scale but who has lost a brother to the soul-destroying hand trimming, there is the chance to rent a *Kermit* (or another trim machine) from their grow shop. Not infrequently this is turned into a purchase after the positive experience. The gizmo functions best, according to the makers, with fresh – therefore wet – material. Hans from Glawill says: "In Switzerland they leave the plants to hang for two or three days before they set to work with the trim machine, but you shouldn't leave them to dry for any longer than that. Working with dried plants, you tend to suck away too many resin glands, and you therefore lose some of the potency of your weed." The eye-catching design of the *Canna Cutter* has further advantages: the three-legged apparatus makes less noise than the machines that are connected up to a vacuum cleaner. What's more, it can more or less be used independently without it being necessary for a trimmer to be stood behind it the whole time. He can then be busy with the rough trim work and throwing the prepared buds into the drum, whereupon the *Canna Cutter* quickly and automatically does its trimming job. The apparatus is fitted with a rotating knife that is under a grid. The distance between the grid and the knife is precisely the same as the distance the leaves stick



The top model from Canna Cutter



Sorted for ease: Canna Cutter in action at the Highlife Fair



Hand-trimmed bud with trim waste



Ladies' hands trim the finest



Bonsai Hero and Testarossa

To trim or not to trim?

Trimming is not always necessary straight after the harvest. For those growers who just raise small quantities for their own consumption, it is perhaps even better to not do so. Instead, hand the whole plant upside down in a drying space and just clean up buds as and when you want them. Do make sure that the plants are not touching each other and that there is enough ventilation, otherwise mould can easily take hold. In this way you can store your buds for longer because the leaves have not been damaged and the resinous bits actually improve due to their exposure to light and oxygen, which according to connoisseurs improves the flavour of the weed.

out from the bud. Around the grid is an open drum with a Plexiglas lid. Since the whole thing vibrates, the pre-trimmed buds bobble around over each other, so that all the buds get a turn having their rough leaves removed. The waste is left behind in a tub under the machine. The *Canna Cutter* is available in two models. The *Aardvark* is also a machine that makes use of a vacuum cleaner. With this apparatus, with which according to the distributor 'trimming is once again FUN,' liveliness is the key word. The cutting head with a built-in motor is housed in a separate handle that can be fixed directly to the vacuum cleaner hose. The current is supplied via an adaptor. Thanks to the loose cutting head there is no fixed place where the buds have to be inserted, and this gives the trimmer a greater degree of freedom of movement and allows more flexible movements to be used for the manicuring. Here again, the trimmer can vary the suction power in order to be able to carefully trim even the smallest buds. The trim waste is sucked away and caught in the vacuum cleaner's bag. *Napoleon* stays closer to the old-fashioned scissors with its two models of electric trimming shears: the *Testarossa*, designed for small-scale hobby growers, and the *Bonsai Hero*, that with its Swiss

precision motor is manufactured to indestructible, industrial-quality. The most important advantages of electric trimming shears are their cheaper price, the greater precision with which they can be wielded (comparable to that of hand scissors) and the care with which the delicate, pollen-rich material can be processed. Users praise the moderate decibel production, thanks to which if necessary they can even be used in the evenings in a domestic home. What is noticeable is the flexibility of *Napoleon's* products: they can be used as a whole range of energy sources, including a set of penlight batteries for when you're engaged in a little guerrilla trimming out in the woods. Starting with something new is always difficult, and that goes for trim machines too. No-one should expect to be working at his best after just five minutes if he has just made acquaintance with the trimming machine. But the phenomenal speed with which an experienced (!) machine trimmer can finish the harvest off does mean they stand head and shoulders above the old methods. Exactly which trimming machine should earn your preference really depends on a number of factors. Besides the price sticker and the noise volume, other factors include the speed

of the trimming work, the quality of the end product and the usability of the trim waste that is produced. Or of course a combination of these. An important question to ask can be whether the existing trimming team can be convinced that it can get on with working with a trim machine, or whether they will be so against it you need to find yourself a new team. Even the plant being grown can be factored in to your eventual choice: Haze varieties, with their often capricious buds are a bit more difficult to trim than commercial varieties with more regularly-

shaped, 'beefy' buds.

"I advise people always to go to a grow shop and hire every model of trimmer they stock for a whole weekend and do a comparative test on them," says *Napoleon*. Look at the quality of the trimmed buds, smoke some end product and see that not too much foliage sits in your trim waste, and also don't forget to check how much pollen is left on the buds after they have been trimmed. If you use the same variety of plant, then it will very quickly become clear which choice is best for you."

Wet or dry trimming?

If you do use a trim machine, you are best off using it on *wet* weed. Using simple electrical shears you can trim wet or dry, though most growers do prefer to trim wet with these too. The advantage of trimming dry is that the buds keep their shape better if they have been thoroughly dried out. The drawback is that the resin glands are more easily shaken free from dry material than from wet plants. Before starting to trim you should remove the large finger leaves, and trim the buds as neatly as you can. You can safely leave bits of the small shoot leaves (partly) intact, since these are usually covered in resin.

Info on The Aardvark:

Hydroponic Wholesale, Unit 16, Derby Trading Estate, Stores Road, Derby DE21 4BE, Tel. +44 (0) 133 220 8090, Fax. +44 (0) 133 285 1640
Web site: www.toppensneller.com

Info on the Canna Cutter:

Indoor Garden Trading, Rietbaan 11, 2908 LP Capelle a/d IJssel
Tel: +31 (0) 10 209 96 65, Fax: +31 (0) 10 209 73 09
Web site: www.indoorgardentradingbv.com

Info on the Kermit:

Glawill Commerce, Postbus 6116, 5700 EV Helmond, The Netherlands.
Tel: +31 (0) 492 592 058, Fax: +31 (0) 492 592 055
Web site: www.glawill.com
Info on *Napoleon*: www.bonsaihero.com





Procure

Have you been 'shroomed'?

As recently as ten years ago, if you wanted to enjoy magic mushrooms your best bet was to take a trip to some hippie resort or other in Thailand or Mexico and order yourself a omelette of shrooms. A few brave individuals might venture out into the countryside to scabble around looking for the native liberty caps – and as often as not came home with the wrong sort of mushroom. This situation has changed dramatically with the arrival of the smart shop. Thanks to this branch of the head business and its suppliers the unique 'holiday in your own head' that is possible with shrooms is now available for anyone who wants it. Probably the biggest producer of magic mushrooms in the world is Procure based in the Dutch town of Hazerswoude. Soft Secrets visited Procure for a revealing report on the ins and outs of this business.

Procure was set up in 1987 by Ali Küçükşen. In its early years the company was mainly busy with establishing mushroom cultivating projects in among other places, Belgium, Poland, Turkey, Romania and China. In 1993 Ali was joined by his brother Murat at the business and from that moment they threw themselves into expanding into growing psychedelic shrooms. With around ten years of pioneering work behind it, Procure now has a production capacity of around 35,000 kilos per year, which makes it one of the world's market leaders in this field.

For the harvesting of this impressive mountain of shrooms Procure makes use of some state-of-the-art technology. The

an absolute prerequisite if they are to be grown in a controlled environment.

International orders

Murat and Ali have built Procure with much ambition and drive into a hyper-modern company where shroom growing is taken extremely seriously. "Procure is one of the biggest producers of hallucinogenic fungi in the world," points out . Murat. "And with this comes a great deal of responsibility. We make sure that there is open, clear information for all parties involved, whether they be consumers, shops, or the authorities. In this way we make sure that we always have a responsible association with the hallucinatory effects of our products."

"The sale of our products is entirely driven by our strenuous efforts towards quality."

growing facility is divided up into various extremely clean spaces for all steps that are needed in the complex growing process. There are sterile laboratories into which no-one is allowed without first donning sterile overalls and operation room mask, and along a long corridor there are 16 growing cells, equipped with advanced computer-controlled climate control. The rooms in the laboratory complex are connected with each other via an ingenious system of airlocks. This is thanks to the fact that although in the wild mushrooms grow on dung and other rotting substances, absolute sterility is

Integrity is also high on the list of priorities at Procure. "The sale of our products is entirely driven by our strenuous efforts towards quality, not by marketing tricks," says Murat. "If we bring a new shroom onto the market, you can be absolutely certain that we have analysed and tested it exhaustively. We do not just stick a new, exotic label on existing mushrooms. In short, we do not engage in any misleading practices. First develop a perfect product. Only once we are sure of the high quality and a technically-feasible growing volume do we put our new variety in the stores."



The small but oh-so-powerful Hawaiian.



The corridor with the 16 grow cells.



Rye honey-combed with fungal mycelia, ready for re-location to the grow cell.



A glimpse into the a grow cell filled with Ecuadorian.

The production process as well as the end product meet the strictest (ecological) quality standards. Procure does not work with middlemen, but delivers with its own dedicated transport department directly to the retail outlets. Super fast and fresh daily, every day. Shroom fans who do not live near a smart shop (especially those outside Holland) can get their supplies directly from Procure. Via the web shop at www.procure.nl you can arrange in just a few clicks of a mouse to have the magical universe of the shroom delivered directly to your home. Payment is via Paypal, Money Bookers, by cheque or even with ready cash. And as soon as the payment has been received the delivery is dispatched out the door. Because use is made of an external courier company, orders made from within the EU can be delivered within 3 work days, and to larger international cities it is not unusual to receive the package within just one

day. The freshness of the products is guaranteed by special cooling packs that keep the packages cool for at least 48 hours.

Variation

Just as with cannabis growing and wine production, in the shroom world several varieties are grown. The amazing assortment grown by Procure is sufficiently wide to keep even the most accomplished shroomer interested. "At the moment we grow Amazonian XTC, Ecuadorian, Mexican, Thai, Colombian and Hawaiian Copelandia, and on top of that we also make two varieties of truffle," says Murat.

Five of this range belong to the Psilocybe cubensis family, a real cosmopolitan that turns up in tropical areas all over the globe. But that does not mean that every cubensis is the same as any other; depending on the place of origin each sub-variety has its own distinct characteristics, just as cannabis from Thailand and Afghanistan are very different from each other. The size and the colours vary, and the chemical profile of each is unique to each sub-variety, thanks to which the trip with each variety has its won character.

The strongest is the Hawaiian Copelandia, a tiny little shroom and an extremely high concentration of active substances. Which variety is most suitable depends on what you want, says Murat: "If you are looking for a heavy trip with hallucinations then you are best off doing a somewhat larger dose of the Colombians, say 30 to 40 grams, or 12-15 grams of the Copelandia. The latter I would not recommend to beginners, because they can be pretty dramatic. If you're looking for a milder trip that feels more like a nice dose of XTC, then you're better off maybe going for a small dose of about 5-10 grams of truffles or Amazonian XTC."

Home growing

From our own experience many of us know how exciting it is to grow shrooms ourselves at home. The problem is only that it can be such a hassle: the process has to be followed, especially for the first steps, under sterile conditions. Something that is hard to achieve without your own expensive laboratory apparatus. Fortunately you can leapfrog these annoying early stages, because Procure also delivers very user-friendly grow kits. All you have to do is open the kit and keep it moist and at room temperature, and a few weeks later you can start harvesting. Growing these wonders of nature yourself is not only great – and educational – fun, it also allows you to make huge savings per portion compared with freshly bought shrooms. With the EZ-Grow® Pro grow kit for example you can get up to 2 kilos of fresh shrooms.

If you find a kit like this a little too easy and are looking for a real challenge, then Procure is still the place to go for all professional materials you need for the establishment of your own magic mushroom lab. From spore to mushroom. Because pettily secretive about their professional secrets is something you can never accuse Procure of ever being...

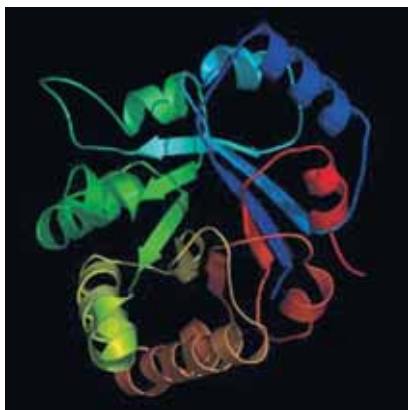
Info and orders: www.procure.nl



A bed of Ecuadorians nearly ripe for the harvest.

Enzymes

By Steve Davis



Ribbon diagram of the *catalytically perfect* enzyme

Whenever I eat a meal, especially if it contains animal flesh, starches, or junk food, I take a pill that contains plant enzymes. This pill greatly aids digestion.

An enzyme is a protein (or a molecule made of proteins) that facilitates chemical reactions necessary for metabolism in living organisms.

Proteins are made of amino acids. Deficiencies in amino acids can lead to protein deficiencies which can lead to enzyme deficiencies. This process can also function sideways and in reverse: shortages of any individual component can lead to shortages of all.

Enzymes are catalysts that help transform carbohydrates into simple sugars used for energy. Enzymes break down proteins into amino acids. Enzymes also have an integral role in assimilating vitamins and minerals from food inputs; they then help transport minerals and vitamins in the bloodstream.

In humans, enzymes begin working to derive nutrition and energy from food as soon food enters the mouth. The body manufactures and sends different enzymes into the saliva, depending on what type of food is being eaten.

The enzyme amylase, for example, works on starchy foods. Enzymes in the mouth, stomach, and intestines are responsible for gathering vital components from different types of food and beverages, and for making those components available to fuel cell metabolism.

Enzyme deficiencies are a serious problem for humans and plants, because enzymes are key catalysts that convert raw materials into substances that form the building blocks of an organism's physical structure and metabolism.

As humans age, their bodies become less able to produce and maintain adequate levels of intact enzymes, amino acids and proteins. Another problem happens because people eat food that has been manufactured or prepared using processes or materials

that enzymes and other digestive processes are unable to metabolize.

Many modern foods have been created or prepared in such a way as to make their vital nutrients chemically inaccessible to our natural digestive processes. The inability of our digestive system to elicit and assimilate nutrients from food causes many types of chronic disease.

Plants use enzymes to facilitate nutrient absorption and other important functions. Yes, plants are a source of enzymes; when I take my enzyme pill, the enzymes in the pill came from plants. But plants themselves need enzymes in order to thrive, and it is often difficult for plants to maintain adequate enzyme levels because they are grown in environments that do not provide the proper substrate for enzymatic formation and activity.

As with human food, the food that many growers feed to their plants is improperly configured, so that plants

In fertile, rich soil environments unspoiled by industrial fertilizers, herbicides and pesticides, the root zone contains “beneficial microbes” and enzymes that colonize the roots and help the roots absorb nutrients.

cannot utilize it. Nutrients in inferior fertilizers are “locked up” in the root zone and plant roots cannot intake them. The root zone substrate, be it soil, rockwool or aeroponics, becomes a toxic mass of chemically-unavailable nutrients that eventually overburden, rather than feed, the plant.

In many agricultural environments, plants do not receive all substances necessary to produce and maintain healthy levels of intact enzymes. Industrial crops grown in soil often suffer because overused, chemically-fertilized, depleted soil does not contain enough nutrients and is biologically dead. In many industrial settings, soil is so biologically dead that plants are unable to utilize any nutrients present in it.

In indoor agriculture using sterile root zone media such as rockwool, the grower must provide a vast range of inputs to take the place of what would be available naturally if plants were grown in fertile, organic soil outdoors. Many growers do not fail to provide plants with the full spectrum of properly-formulated compounds necessary for maximum growth and yield.

As with humans in affluent countries who suffer malnutrition, obesity and diabetes because they eat artificial, toxic foods that their bodies cannot digest, many marijuana plants are starving, even though their growers are dumping large amounts of fertilizer into their root zone.

These growers believe that providing only fertilizers with nitrogen, potassium, phosphorus and a few micronutrients is all they have to do. And it is all they have to do- if they want mediocre or toxic plants that produce mediocre and toxic flowers.

If they want strong, fast-growing plants that produce huge amounts of potent floral growth, they need to understand the crucial necessity of providing properly-formulated nutrients, enzymes and other components.

Even when growers seek to provide a range of nutrients and other materials to their plants, they often use fertilizers and additives that are poorly formulated, which makes it difficult if not impossible for plants to uptake anything useful from those products.

In many agricultural situations, but especially in indoor grow environments, enzyme deficiencies harm crop health. Enzymes are necessary for important agricultural processes. Enzymes support metabolism, infrastructure, root zone health, maturation, nutrient absorption, floral production and immune systems. They are essential to cellular function, but become depleted as crops mature, just as in humans, when aging makes

it harder for our bodies to produce sufficient quantities of quality enzymes.

As plants enter floral phase and direct their energy towards floral production, they deplete enzyme reserves at the same time that their production of enzymes is also decreasing. If you examine the range of enzymes in plants and how they affect plant growth and metabolism, you'll see why you should add enzymes to your plant feeding regimens.

The enzyme glutathione s-transferase, for example, removes toxic substances from plant cells and assists immune system function when plants are attacked by pathogens.

When plants want to convert nitrogen, phosphorus and potassium into useable forms, they rely on dozens of different enzymes.

Photosynthesis is dependent on enzyme function. The health of the root zone, the ability of roots to grow, the root's ability to uptake nutrients, the bioavailability of nutrients in the root zone, the transfer of water from the root zone into the plant, and the transfer of water inside the plant- all are dependent on enzymatic activity.

Perhaps you've heard of the damage that renegade “free radical” oxygen molecules can do to your body's cells. They cause mutations and interfere with cellular metabolism. The same thing happens in plants, and when it does,

plants rely on enzymes to act as “anti-oxidants” that neutralize free radical damage.

The root zone is neglected by many growers, even though roots are a plant's “mouth.” In fertile, rich soil environments unspoiled by industrial fertilizers, herbicides and pesticides, the root zone contains “beneficial microbes” and enzymes that colonize the roots and help the roots absorb nutrients. Microbes and enzymes work together to scour the root zone for debris, which helps prevent root disease. They break down materials so that the materials become bioavailable as carbohydrates and nutrients for root uptake, and so that the root zone does not become “rotten.”

In naturally-alive root environments, enzymes increase the number and function of beneficial microbes. Together, enzymes and microbes clear root zone debris, minimize soil diseases, expedite nutrient bioavailability, and assist root growth and function.

When crops have insufficient amounts of fresh enzymes, they grow more slowly and all plant functions are impeded. Yields and potency are lower. Maturation is delayed. In extreme circumstances, enzyme problems kill plants.

Growers who experience crop difficulties often respond by dumping more nitrogen, potassium, phosphorus and micronutrients on their crops, or by adjusting pH or environmental conditions.

In my indoor marijuana gardens, I've found that dosing my crops from start to finish with a product like Advanced Nutrients' SensiZym has produced noticeable beneficial results.

In years past, what I would have perceived as a nitrogen deficiency, or a genetic defect that caused slow growth and small flowers, I now have learned to remedy by using SensiZym. The product's manufacturers say it has 80 or more different types of enzymes useful for plants, and that these enzymes are biologically active and potent for a very long time after being packaged.

The digestive plant enzyme pill that I take with my meals only has 12 enzymes in it, but I feel how the enzymes help me more easily digest foods that used to cause digestive problems.

The digestive enzymes help me more easily derive and absorb nutrients from my food, which means I have more energy and nutrition.

I believe that if my plants could talk, they would thank me for augmenting their diet with digestive enzymes that help their internal processes and roots. What's good for the grower is good for his plants is my motto!

For more info check
www.an-europe.com

The Doctor

By Franco Lojano

The story of a world champion

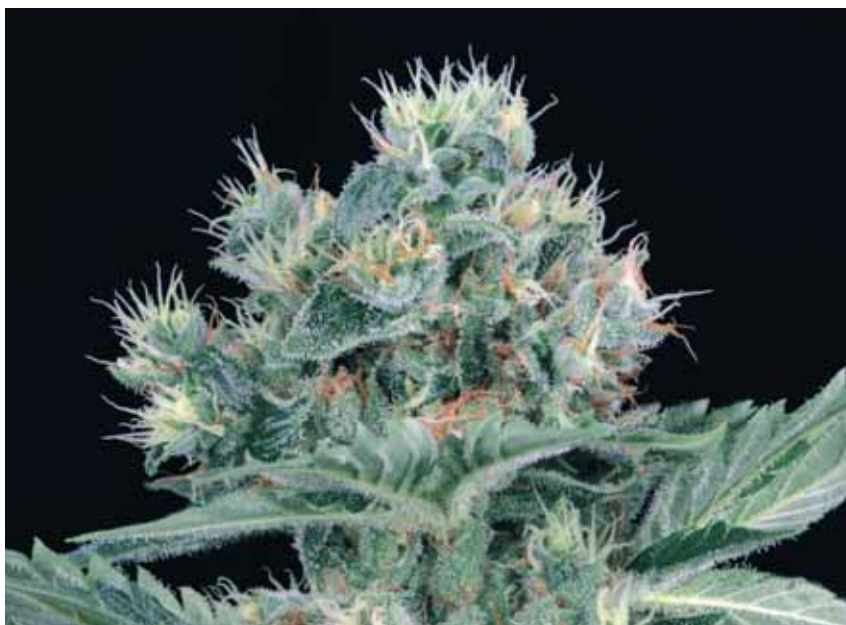
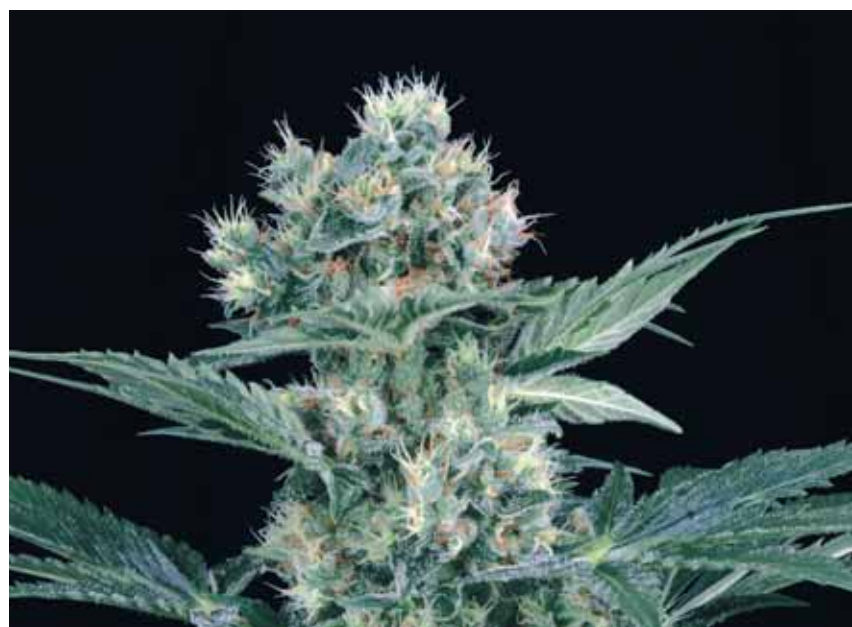
The latest creation of the Green House Seed Company, The Doctor, is about to enter the international markets. Arjan took extra care in selecting this amazingly high-yielder, a sweet strong indica with an incredible production and a strong character.

fully before harvest. At the Green House Seed Company we often like to give it an extra week to achieve better sweeter taste and more physical CBD effect, heavy stoned. The flower formations are massive and round, compact and very dense, with big pear-

The smell of the Doctor is intense, sweet but very berry-like; a complex bouquet and a very mouth-filling taste. Many smokers noticed a prevalence of the Great White Shark flavour. The THC content is up to 18%, with very high CBD as well. The CBD allows a smooth body-feeling that hits after the first 10-15 minutes, giving the Doctor an edge on the regular indicas. At the Green House Seed Company we like to grow the Doctor in different ways, but the best results are achieved in hydroponic systems, using 20 liters container and rockwool flakes as medium. The plants are given 2 weeks of 18 hrs, then they are

downloadable for free on www.greenhouseseeds.nl, will reveal some of the soft secrets behind all the strains of the Green House Seed Company, week by week from clone to harvest and beyond.

The high CBD content makes the Doctor a great medicinal plant for both pain relief and MS.



The Doctor is a true indica with very peculiar characteristics. Short, bushy plant, it develops with a typical round shape; the strong branches can easily support the heavy-weight buds. The lower branches tend to stretch out of the profile to reach the light and the internodes stay short, around 6-7 cm.

It is a very easy-to-grow plant, one with a very strong stem structure. It is good for low-ceiling indoor grow rooms as well as for outdoor. The leaves are thick, with short and bulky overlapping fingers. A leaf structure that reveals the true indica pedigree of this strain. The flowering time is 8 weeks, with great resin development during the last 2 weeks. For this reason it is advised to let the plants mature

shaped calyxes. The high calyx-to-leaf ratio guarantees low chlorophyll and a sweet taste.

Red eyes and heavy legs are guaranteed.

Already in the 5th week of flowering the glandular trichomes will start turning mat, but new trichomes will appear well into the 8th week, creating a strong high followed by an extra-strong stoned effect on the body. Red eyes and heavy legs are guaranteed. The high CBD content makes the Doctor a great medicinal plant for both pain relief and MS.

flowered, finishing at around 120 cm at harvest. The Doctor can take high concentrations of feeding, up to 2.2 EC during the peak of flowering in week 3-4 of the 12 hrs period.

Outdoor the plant will be a dream for all growers. It finishes at the beginning of October, with amazing yields up to 1000 grams per plant. It is resistant to pests and it tolerates cold temperatures at night.

The Green House Seed Company "Grow DVD", available in January 2006, shows the Doctor followed week by week, with detailed information on all environmental factors necessary for a perfect development and great results. This double DVD, soon

After the great feedback given by the medical patients in Holland and by many judges of the High Times Cannabis Cup, in 2006 this great plant will be available to all growers. Come visit our stand at the next Spannabis expo in Barcelona on 24, 25 and 26 February 2006 to learn more about this amazing champion directly from Arjan and the Green House crew of creators of champions!



Bulls, Bears, and Buds at CannabisInvestments.com

Looking for a less conspicuous way to spend the profits from your garden? **CannabisInvestments.com** is a brand new website where you can introduce yourself to the stock market from a pot perspective. With more companies offering stock options to their employees as incentives these days, CannabisInvestments presents an opportunity for the “self-employed” of the cannabis industry to invest in their own futures.

By Kristie Szalanski

If you're like most growers you're probably far less interested in shares and portfolios than in strains and yields. However with the modern hemp industry enjoying a rebirth and the (albeit slowly) growing acceptance of medical cannabis worldwide, there's no better time than the present to investigate related investment opportunities. Think of it as a legal alternative to your preferred income with the added benefit of financially supporting worthy industries and companies. CannabisInvestments.com helps the layman understand all the current possibilities of investment plus keeps its followers updated as to new cannabis and hemp businesses on various stock exchanges. You can learn about corresponding stock symbols, find out who is listed on which boards, and narrow your search for investment to various genres such as industrial hemp companies or drug producers.

The site was begun as a way to collect like-minded companies and present them in an easy-to-participate format. You don't necessarily have to have any experience with the jargon of the market in order to successfully find an interesting opportunity. Activists, growers, hemp producers, and regular old smokers will all benefit from CannabisInvestments.com. One way to keep the canna-businesses running is to buy weed, bong, vaporisers, etc. With the contacts and info offered by this website you can also now invest amounts as small as what you'd pay for a few packs of skins up to, of course, the dough you'd drop on expensive lights and other growing equipment.

Some of the companies listed on the site are already active members of various boards. Omega Pharma is responsible for the dispensation of medical cannabis in the Netherlands. This government-supported

group will likely be one of many to be posted on the market as this industry faces current changes. Recently medical patients in the Country of Cannabis were shocked to learn that their insurance would no longer cover their precious herbal alternative. As the first country to legalise cannabis for distribution in pharmacies, the Netherlands has been offering higher-priced and more strictly controlled cannabis to its ailing. No doubt the industry will expand or at least evolve as a result, not to mention offering a business plan of sorts for other countries attempting to legitimise medi-weed. After all, there is plenty of money to be made from those greenhouses....

Speaking of the plants, Amigula Inc. is another medical group with membership to CannabisInvestments.com. These kind folks are producing gardens full of medicine for prescribed patients in Canada. Worldwide the Canadian government is gaining a reputation for its tolerant attitude towards the medical movement. Although the laws are still more punitive in the Great White North for recreational users, they are nowhere near as severe as those of Canada's neighbours to the south. That's not to say, however, that there isn't a heavy hemp and cannabis representation from an American perspective on CannabisInvestments, as well as many international conglomerates that form a global representation.

Solvay S.A. “is an international chemical and pharmaceutical group... [which] employs more than 30,000 people in 50 countries.” This coalition produces a wide range of drugs for markets ranging from HIV/AIDS to OCD. A subsidiary of Solvay, Unimed Pharmaceuticals Inc., produces a synthetic form of THC called Marinol. The drug is given to patients with a wide range of ailments

from Crohn's Disease to AIDS Wasting Syndrome. Solvay also produces a synthetic cannabinoid for use by another listed group, Nektar Therapeutics. Incidentally Nektar also manufactures the containers in which Solvay distributes some of their own drug products. These sorts of industry connections are bound to grow and create a distinct corner of the stock market, which is very good news for not only CannabisInvestments.com but also canna-investors as well.

One company in particular on the site has already enjoyed both celebrity and conflict within the media. GW Pharmaceuticals is an UK firm credited with creating a popular yet controversial drug within the medical community, Sativex. Popular to cannabis advocates due to its uniqueness: the drug is the first of its kind as an actual plant part medicine (as opposed to one synthesised in the model of the cannabinoid structure of cannabis.) The drug, which is available (but not yet widely) in Canada and England, is controversial due to multiple setbacks and politics concerning its release. GW Pharm is also a fantastic source of information and support for medical patients as well as a respectable and professional face of the medi-weed world. As we all know, however, medicine is not the only use for a cannabis plant.

Hemp clothing is also represented for possible investments in the form of Hemp Town, Inc. Since 1998 Hemp Town has been producing wearable and desirable clothing and now offers a wide range of cosmetics and toiletries as well, plus other favourites like Dr. Bronner's soaps. Their website offers product samples and even celebrity endorsements. Hemp Town can accommodate wholesale orders for, say, retailers and decorators. Other hemp clothing manufacturers are likely to follow suit as popularity and investment opportunities spread.

Not everyone on CannabisInvestments is listed on an exchange, yet alternative investment possibilities do exist. For example, Hemp Plastic Ltd. will enlighten you as to the myriad of non-petrochemical plastic products that are possible today. You may have seen hemp plastic herb grinders, scales, CD trays, and even musical instruments and now you can learn how to invest through their website. Another non-listed yet hugely successful business is HempFlax B.V. Located in the Netherlands, HempFlax produces animal

bedding and cage liner for animals as small as mice and hamsters to as large as horses. Yet another is Ecofibre Industries Association, which educates the public as to various eco-friendly alternatives for fibre-based technologies, including the optimisation of oil palm residues and fibres as mulching, etc. The group was founded in 1998 after five years of research compounded with that of a group called Forest Research Institute Malaysia. While much public attention has been placed on rainforest products, hemp technology, and alternative fibres for cotton-based products, some of the companies on CannabisInvestments are even less plant-oriented and more financially focused.

One such firm is the Golden Opportunity Fund, a mutual fund set up for investing in Prairie Plant, established in 1988 as a “privately held plant biotechnology company with a focus on research and development.” Their site includes information on cannabis and other plants, contract propagation, and medical cannabis.

One of the main benefits of keeping up with CannabisInvestments.com is its uniqueness. The first of its kind, the site supports an immensely unexplored and young facet of stock markets worldwide. Another plus is something followers of stocks know- markets can be unpredictable but it's just common sense to realise the explosion canna-businesses have the potential to make. Advocates have always believed that the plant was unfairly prohibited, not for harming the health but rather for purely economic reasons. We know that the plant has the power to turn various industries upside-down: fossil fuels, pharmaceuticals, paper products, petrochemicals, etc. Why not jump in now and perhaps make a little money for a change? Or think of CannabisInvestments.com as a more productive way to launder your garden money....

Recommended Websites:

www.CannabisInvestments.com
www.omega-pharma.be
www.hempplastic.com
www.gwpharm.com
www.amigula.com
www.solvay.com
www.nektar.com
www.hempplastic.com
www.goldenopportunities.ca
www.hempflax.com
www.prairieplant.com
www.ecofibre.com



Question marks surrounding processed weed

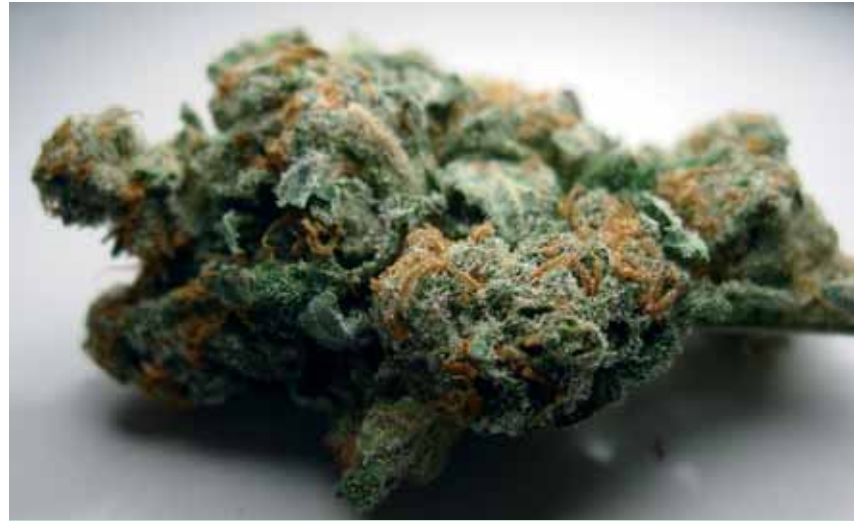
Processed weed? At first hearing it's a laughable concept, because how could you possibly dilute a natural product such as weed in order to make its weight higher? After all, you'd know immediately if someone shoved a bunch of cabbage leaves among your buds, wouldn't you? But the ingenuity of the profit-seekers knows no bounds; for some time now rumours have been doing the rounds in cannabisland about a processed weed that even the highly knowledgeable cannot tell with the naked eye that it has been jiggered around with. There is – understandably – some

concern about this, because if the stories are true, then people are being swindled, and even more seriously, smokers are facing unquantifiable health risks. Through our contacts, Soft Secrets got hold of two samples of weed, one of which according to the person who supplied us had been doctored, and the other had not. To the naked eye the two samples looked identical, but with a magnifying glass there were certain differences that could be made out.

By Jan Sennema



Spot the differences: an unprocessed bud from the samples we received...



... and a bud that has been processed.

As long as there has been trade in commodities, products have been cut and adulterated. The scarcer the product, the sooner somewhere in the distribution chain someone is tempted to bump up their profit margin by diluting said product with a neutral substance. This form of consumer deceit is really not the exclusive domain of 'criminals', because even in the supermarket you can find countless examples of (sometimes legal) fraud, for example with water and cheap 'chicken pieces' – protein-sprayed chicken meat that in many supermarkets are sold with complete legality but misleadingly as 'chicken product'. Mmm, tasty.

Honesty

If honesty in the legal world can no longer be relied on, then in the underworld of course there is absolutely nothing to hold them back. Naturally, one illegal substance lends itself better to being cut than another. What also counts is that selling adulterated dope in certain circles is really not a good idea. Hard drugs in particular are well known to be cut on a large scale with strange substances. With caffeine, manitol, inositol, fructose, dextrose, vitamin E and these days even atropine-cut coke and speed are more the rule than the exception. Hashish too was and still is regularly adulterated, both in the land of production as well as by dealers in the country it is distributed. The list of substances that have been used for this is long: as well as the addition of low-value leaf material from the hemp plant itself, they include animal fats, soap, henna, shoe polish, paraffin, sand and camel shit. Although it is perfectly possible that the latter is no more than an anecdote from the rich dope-folklore. Opium has also over the years been one of the usual suspects, especially regarding hash coming out of India and Nepal – even though opium here is more expensive than hash and so it would actually be a bonus for the consumer, you might say. Nederhash has also been found cut with foreign substances. Herman, the

grow shop owner who tipped us off about the adulterated weed says: "A customer came in one time with marvellous, beautiful Nederpolm. At first we thought 'oh, what a wonderful colour', until we stuck it under a microscope. Then it was clear that were ground fibres from an ordinary pair of stone-washed khaki jeans mixed throughout it."

Blind as bats

Hashish is a perfect candidate for having weird substances mixed with it thanks to its easily-kneaded texture. With weed, this is a bit harder. In spite of this, there have always been smart Alecs who have dreamed up ways of boosting the weight (and therefore profit margin) of weed. For years now within the cannabis trade, it has been known that weed is not always the purely natural product that we think it is. And this is not a reference to the pesticide residues or other chemical crap that is regularly used in the nation's commercial green fields. "Dude, that is as old as the road to Rome", says coffee shop owner Erwin from the Randstad laconically when I ask him if he's ever had any contact with processed weed. "I have often been offered weed with starch on it, but you'd have to be totally blind not to see that immediately." If that is true, any savvy businessman would pick out such an adulteration immediately. And it looks unlikely that a lot of weed treated in this way has been turning up in coffee shops, since according to those in the know it was mainly weed destined for export.

Export

And that is still the order of the day, or so it seemed according to an article in the September issue of the German hemp newspaper Hanfjournal, in which readers were warned about a certain shipment of weed that came out of the Netherlands. In the article it was stated that: "At the moment in Holland, it is established practice for huge quantities of worthless

weed to be sold abroad for ready cash. It concerns low-value and already pollinated weed that has then been processed in some way. The odour is very weak and 'green'. When it is smoked at first you do not notice anything unusual, and the ash too looks normal, but the stuff has virtually no effect. If you inspect it more closely you see within a few minutes a crazy mass of powder that looks absolutely nothing like cannabis glands. We suspect that it may be talcum powder. Thanks to this, at first sight it looks like a super weed; logical then that it is a bit more expensive. A pure swindle. In the first place this weed is pollinated and so has already brought in money. Secondly you gain some weight, and thirdly in this way you can also flog the most worthless weed."

Fraudsters

Over the years fraudsters have tried in many ways to ratchet up even further the already not-to-be-sniffed-at profits made on Dutch weed. A random selection of some of the substances that have been used to add more weight to the scales: iron filings (extra weight), starch, flour and baking powder, especially popular since the rise of the 'white' varieties (add weight and a tasty-looking white frosting), cola, sugar water and even cement. This last substance was spread over the plants with a ventilator in order to pop a few more grams on them before harvest. A real cannabis veteran told me how way back when, the inside of the stalk of the cannabis plant, which consists of white pulp, was dried out and in ground form strewn over the buds. In that case at least the additive was still a cannabis product. The nicest and cleanest way of bumping up profit margins is without doubt the trick that was apparently used regularly a few years back. The supplier hid a couple of the old five guilder coins in the middle of a kilo bag, and because these coins weighed around 20 grams apiece, this was weight he did not have to make up with weed. What was so psychologically compelling

about the trick was that the swindled finder naturally for no moment felt like he'd been had, but on the contrary that he was a lucky so-and-so. So hey, if you can swindle someone and make them feel like that, you're almost an artist. And for the consumer there was of course no specks of crap in the air.

Flim-flam

This sort of fraud, with a dose of good will, can still almost be described as a kind of innocent flim-flam that fits in with age-old Dutch trading traditions. But with the adulterated weed that is now being offered at various places in the Netherlands, there is possibly something more serious going on. Among prominent cannabis pioneers, Herman is not exactly unknown. He's been running a wholesaling business as a spin off from his grow shop for a good 15 years. One of his many contacts knows people who are active in processing weed, and he managed to put two samples Herman's way. Of these one was, according to the contact, and the other was not treated with an unknown substance. Herman: "In all the time that I have been involved in this business I have often come across weed that had been meddled with," says Herman, "but if I tapped this bud then white powder fell out from it. What's worrying about this scam is that it is not possible with the naked eye to spot it. Only with a strong magnifying glass are the small differences visible; the stuff used can then be seen again as little flakes. I think. According to someone I know, it might be wallpaper paste, but it could just as well be some kind of polymer or other that has been tinkered with."

In itself, wallpaper paste is not an illogical conclusion, because the stuff, that primarily consists of cellulose (which is present in wood), binds with moisture and dries out transparent. Sadly, it is hard to pin down with analysis because the cannabis plant also contains cellulose.

Scarcity

According to Herman the appearance of this new generation of adulterated weed is a direct consequence of the scarcity on the market that has existed ever since the increasingly hard crackdown against growers in the ‘Golden Triangle’ of Limburg (southern province of NL – ed.). “We are well used to a certain level, but in recent times it has become considerably more than a trickle. We even hear stories of buyers walking around with magnets in order to check that there are no iron filings in the weed. If you sprinkle these over wet weed then you will not be able to notice them once it has dried out.” The alarm bell started ringing when suddenly all over the Netherlands wet weed was being bought up on a large scale. “It began in the South and is spreading out like an oil spill over the rest of the whole Netherlands,” says Herman. “For ten kilos of wet weed they are paying the price that you would normally pay for two kilos of dried, or 20% of the wet weight. Then the weed is already dried and had its leaves removed. I reckon they are making the weed even wetter and then rolling some kind of powder or other through it. Then it is dried out in a day or two (normally commercial weed is dried for about a week – ed.), thanks to which the little leaves contract very quickly. According to the guy who gave me the samples, the weed weighs about 10-25% more after it has been processed.”

Enormous amounts

With wholesale prices hovering around the three euro per gram mark, it is clear that we are talking about enormous amounts. The appearance and smell of the processed product are no different to that of unprocessed weed, thanks to which it is extremely hard for buyers to tell the difference between a kosher and a potentially dangerous product. “If I can not or barely see that it has been processed, then neither can 99% of the shop owners tell the difference,” says Herman, “so I know for sure that it is being sold in the Netherlands on a huge scale in shops. Let’s assume that 70% of weed at the moment is being sold wet,” he continues. “Of that, maybe 80% is being sent abroad, but the rest is landing up in coffee shops.” Herman is seriously worried about the phenomenon, for a start because the health of innocent dope smokers is being toyed with, but above all because the government is always ready to pounce on any argument for even more repression. If there really is something going on, then ‘the demon weed has done it again’ and those who are against cannabis will have yet another argument to justify an even tougher approach, he argues.



Buds aus Holland probably cut with talcum powder.

Variants

Comparable reports coming out of the provinces of Brabant, Utrecht, Limburg, Gelderland and Zeeland largely reinforce the thrust of Herman’s story, and there are now newer (and grimmer) variants coming to light, for example in the province of Zeeland. In a South-Holland grow shop I heard the story of a shop owner who had been told of a ‘very reliable acquaintance’. He had got a couple of kilos of ‘lovely white weed’ to split up. When he stuck one of his arms in the bag, it came back out with burn blisters on it. According to this informant it was caused by a pigment for powder coating, a heavy chemical substance. But whoever I spoke to about processed weed, almost all of them would only do so on the condition that they could be quoted anonymously, and that speaks volumes in itself. Arne, who runs a grow shop in Limburg, was a short while ago thanks to a customer also confronted with adulterated weed. Having listened to his story it looks likely that there is also another processing method being used. “A friend came over with two small samples and asked me which one I found the best looking. Apparently, I picked out the one that had been processed! You just cannot see anything wrong, and the smell too is exactly the same as the non-processed one. At first I completely could not believe that there was anything dodgy, but the person who brought it to me was absolutely trustworthy. Only once you looked at it under a microscope could you see that there were weird rectangular blocks on it.” Arne too has an extensive knowledge of weed, but unlike Herman, who in principle will not smoke anything he does not trust, Arne wanted to know the truth for himself and rolled a joint with the suspected sample. “One drag was already enough. It tasted chemical, sharp. I had heard that the stuff with which the weed had been adulterated was a chemical product from DSM (large Dutch chemical company – ed.) that is sold in kilo bags. The stuff was sprinkled all over wet weed which was then freeze dried.”

White coats

But enough of all these vague suspicions. We want some hard facts. Analyses, graphics, men in white coats. So it’s off to CannaResearch. When we turned up at CannaResearch with our samples, the world famous lab was more than happy to research what substance had been used. Not so strange, because the investigation actually fits seamlessly with the research into pesticide residues in weed that CannaResearch has long been busy with. But I was warned directly that it would not be an easy task to sort without any clues through the tens of thousands of chemical



Shocking: what shows up after a minute's pollination...

agents that exist at random to discover the identity of a single unknown substance. That would take years. But that something was done to the suspicious sample, was fairly quickly found out by the smart boffins at CannaResearch. More reliable sources had also reported examples of processed weed to CannaResearch, thanks to which something that had once seemed to be just the latest urban myth was becoming more and more likely to have some truth to it.

“There is something up”

“The research into the sample is far from over,” said Ron from CannaResearch. “But from what we have learned so far, it seems that we have established that there is something up. Because it is impractical to go looking for particular contaminants out of the blue, we have developed a test with which in any case you can exclude the presence of certain substances, in this instance primarily heavy metals. From this test it was established that there was no indication of metals in these samples, but with this we have only ruled out 1% of all chemical agents, and so this result in no way says that there is no risk to the consumer. We are going to conduct some other tests to see if the THC concentration varies significantly between the two samples, so that we can determine what percentage of the weight consists of additives. What we have also determined is that the product was dried out very quickly. The THC levels are barely influenced by this, but certain flavourings and psychoactive substances, such as terpenes, were broken down, thanks to which the taste and smell were clearly reduced. A real professional smoker will be prompted to ask “what the fuh-?”, but a young German kid will probably not notice anything amiss, and just think “whoah – I’ve got nice and stoned from it.” For some time now, CannaResearch has had the facilities to do a chemical analysis of possible pesticides in cannabis products. A ground-breaking service with which coffee shops can cultivate their sense of self-regulation and responsibility. Without a doubt coffee shops will soon be banging on the door of CannaResearch hoping for a test for as yet unknown weed adulterants.

Critical

In anticipation of the results from the CannaResearch investigation, the question remains whether the processed weed represents a hazard to the consumer. And although there are enough suspicions, and in any case two informants testifying to the fact that processed weed is making its way in to certain shops, it is still absolutely unclear on how big a scale this is happening and whether the processed weed is remaining in circulation after being



Weed visibly cut with an unknown powder.

discovered. A couple of thousand euros-worth of dope is a lot to flush down the loo purely because there are some vague reports of weed being messed about with, and this is not the reaction we can expect from everyone. And to add to all that vagueness there also comes the possibility that we are not talking about one but perhaps many methods of cutting weed. Even so, most coffee shop owners that I have spoken to believe that the phenomenon of processed weed will work itself out, even if only because it is pretty noticeable when the much-used kilo bags suddenly start having the same weight but with smaller volumes of weed in them. According to others, this is a rubbish argument, since weed is far from always delivered in such a package.

Microscope

In spite of the invisibility of the threat from processed weed, coffee shop bosses are not forced to just sit around and take it. One rule of thumb to help prevent buying suspect weed is to insist that the weed is delivered in the well-known kilo bags. Another is to build up and maintain their own network of growers and thereby build up a relationship of trust, which can save a lot of uncertainty, just as can maintaining a critical attitude towards new suppliers. And finally there is the tip to invest in a microscope, which under the circumstances is no longer an unnecessary luxury.

Kite mark

‘Whistle blower’ Herman thinks that it is high time that coffee shops take responsibility themselves and take some structural steps – which in the same effort another hot potato, pesticides, would be tackled. “I think that coffee shop owners have to make sure that the weed that is handed over the counter has had some sort of ‘kite mark’ establishing that it has been tested for poisonous substances. Think of the way that in Germany wine is checked. Every wine grower has to have a sample of each wine he produces tested at a laboratory. It costs them a couple of euros, and they get back a test report. By using spot checks it can be checked whether the wine does indeed come from that party. It is not hard to imagine that an institution such as the Trimbos (Dutch drugs research unit – ed.) develops such a test. But that something has to happen is clear, because if we let this slumber then sooner rather than later we’re going to once again see total hysteria in the government.”

With thanks to CannaResearch and Hanfjournal

Names of people mentioned or quoted in this article have been changed to protect their privacy.



Dutch gold: 40 kilos of Nederweed sits waiting for its journey to begin...

Family Names

By Lazystrain

Genealogy is the study of family history. The genealogy of cultivated cannabis, as with people, can often be traced back several generations. Some cannabis plants descend from a long line of close-knit ancestors, each of which shares distinct history with other family members. Other cannabis plants have derived from inter-family (or even perhaps polygamous) relationships; with the most vigorous family members being procreated alone. These go on to form new families in the process. Nominally, the labelling of cultivar may take on genealogical pattern or a stereotype of vogue. Here we shall discuss some of the popular

'Family Names' that in recent times have dominated the cannabis world.

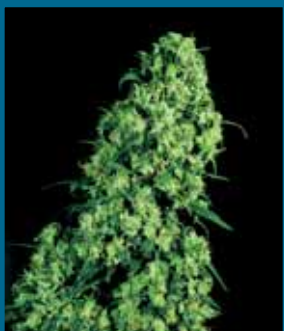
In the past breeders worked closely with landrace species of cannabis to make fresh seed. In time they started to play around and develop their own varieties from the stock they'd acquired. These cultivated varieties (or cultivar) were engineered through programs of selective, haphazard and sometimes accidental breeding. Following the Linneaus system of plant categorisation these cannabis breeders (mainly based in the USA) were free to name their own cultivar of cannabis as and when they became known.

Some breeders came up with some really inventive (and groovy sounding) cultivar names for their new strains of cannabis, like say 'Haze' and 'Skunk'. A few breeders preferred to keep a sense of heritage amid their lines by using geographical places in the naming of their genetics, like say 'Kush' or 'Colombian'. Many breeders opted for an in-between approach by mixing geographical names with patterns evident in growth, like say 'Acapulco Gold' and 'Maui Wowie'. Later, others simply used names that sounded nice, like 'Northern Lights'. Today, many of these names are taken for granted.

Before continuing it is worth noting that where Horticulturists sub-divide the genus *Cannabis* according to its species (*indica*, *sativa*, *ruderalis*, *chinensis*), then

'cultivar', the Botanist prefers to attach the prefix '*Cannabis sativa*' to all varieties regardless of their specific contextual origin. Here we shall also ignore species of cannabis, concentrating purely upon the cultivar name/ strain. The examples given below are a rough guide to some popular family groups of cultivar. The term "family" is here used in a loose horticultural sense, whereas in botany the term "family" represents the genus *Cannabis* overall. Those groups with looser affiliations or fewer members are here termed "tribes".

N.B. [The following information was extrapolated from various sources including 'Nivarna B.V.' (2006), 'The TR Genetic Cookbook' by Tropical Rainforest (2005), and 'Green House Seed Co.' (2006).]



The Skunk Family

We shall begin with the largest and most notorious family in collection that of the Skunks. 'Skunk' itself is a mix of x3 famous landrace strains. These are 'Acapulco Gold', 'Colombian Gold', and 'Afghan'. The variety 'Skunk' was first bred-out in the USA during the 1970's. The name "Skunk" represents the intoxicating smell that the plants produce when grown and smoked. Commercial Dutch growers would

later use 'Skunk #1' as a base block in many projects of intensive breeding. For example, many landrace genetics available within The Netherlands are crossed with 'Skunk #1' so to add stability and reduce flowering. In recent years the Skunk family has then established an almost 'Mafioso' presence across the cannabis scene in Europe. Members of the Skunk family may include 'Big Bud', 'Cheese' (aka Skunk#1), 'Holland's Hope', 'Ice', 'Jack Herer', 'Mazar', 'Shiva', 'Super Skunk' and many, many more than we care not to list here.



The Afghans

Closely aligned to the dominant factions within the Skunk family, the Afghan tribe enjoys stamping its authority onto a number of cultivar families, be they large or small. 'Afghan' is itself a landrace strain procured from Afghanistan sometime during the countries Soviet occupation. Considered to have descended from an ancient family line, 'Afghan' was soon stabilised by breeders so as to preserve the

family's honour. Various breeders/growers have also term 'Afghan' as 'Kush'. Besides its active role in the Skunk family, 'Afghan / Afghan #1' plays a big part in some real heavy hybrids like 'Chronic', 'Critical Mass', 'Northern Lights', 'Super Afghan' et al... In recent years seed collectors and breeders have hunted strains containing pure 'Afghan'/'Kush' hereditary (often from Afghanistan) for the purpose of in breeding and to rectify the family name.



The Thais

'Thai' varieties are often confused with their close cousins 'Vietnamese' and 'Cambodian' and visa versa. This extended family-unit then acts more like a tribe than a close-knit family in the traditional sense. A reason for this is that S.E. Asian varieties are often interchanged by breeders, both difficult to stabilise and identify. Patterns of kinship may be unique or so inbred that progeny display hermaphrodites (an

element typical in Thai landrace). Breeders prefer to identify and isolate the 'Vietnamese' and 'Cambodian' genetics that display uniformity in action. As a result the family is split into many factions (or smaller tribes). Today some influential tribal leaders have emerged some on the Thai/Vietnamese side some on the Cambodian ('Blueberry', 'Cali Orange', 'Haze', 'Juicy Fruit', 'Kali Mist', 'Northern Lights', 'Yumbolt'...). Many of now command their own family units.

The Haze Family

The second biggest family of cultivar is that which has acquired the common name Haze. 'Haze' itself is a complex cross between several landrace cultivar including 'Colombian', 'Mexican', 'Thai/Vietnamese' (and possibly 'Jamaican')? Whilst the lineage of 'Haze' is debated, it is accepted that 'Haze' originated in California during the 1970's. In their own right the Haze family have come to represent some of the best long-flowering plants for indoor growing. The family gene is considered to be mild when inbred yet highly vigorous (and extremely potent) when hybridized with certain members of both the 'Skunk' and 'Afghan' families. These crossbreeds also help to reduce the flowering periods traditionally associated with the Haze family. Today the Haze family has connections all over the world and holds influence over many breed-lines.



The Indians

Perhaps originally one of the smallest tribes, the Indians have been grown-out to make new families of plants, forming a distinct relationship with other families in the process. Many 'Indian' varieties derive from a single 'South Indian' plant, while others stem from more humble beginnings. 'White Widow' is arguably the most famous family to be spawn from 'Indian' varieties, although strains like 'Armageddon47'

actually carry more in the way of Indian prominence in heritage.



The White Family

Another big group of cultivar is that of the White family. With pedigree in the strain 'White Widow' (aka WW) this family was once one of the most competitive in seed competition. Rumoured to be a cross between 'Brazilian' and 'Indian', WW comes from the breed stables of one of the industries' most prolific breeders, Shantibaba. Originally released in Holland during the early 1990's, for many years WW flew the White

family flag and set the standard of things to come. Many of the 'White' family members are still housed at the Greenhouse seed/coffeeshops Amsterdam. The strains 'El Nino' (aka 'Godzilla'), 'Great White Shark' (aka 'Peacemaker'), and 'White Rhino' (aka 'Medicinal Man'), each contain 'White Widow' in varying parts. Since the White family is so popular it has grown in recent years to include 'Snow White', 'White Pearl', 'White Rose', 'White Russian'...and so on.



The Northern Lights Family

The Northern Lights family is synonymous with the Netherlands and ‘the Dutch method’. ‘Northern Lights’ (‘NL’) is a cross between the ‘Thai’ and ‘Afghan’ families (a perfect inter-tribal marriage). The NL family received much attention during the ‘Golden Age’ of indoor cultivation. Inbred, out-bred, and line-bred, ‘NL’ went on to mother/father lots of siblings, each of which has picked up awards. ‘NL#5xHaze’ which by itself commands authority, is the strain that cracked the spyglass when paired with the Skunk families ‘#1’ to make ‘Jack Herer’. For many years this offshoot of ‘Northern Lights’ was the richest child in the family business; until mother came back to run the family affairs. Today the Northern Lights family still make a tidy sum, simply because they still child some of the best genetics known.



The Bubblegum Family

‘Bubblegum’ is one of the smaller families that have only just started to leave a lasting impression upon cannabis breeders. ‘Bubblegum’ itself is a cross between ‘Big Skunk’ and ‘Northern Lights #5’ (that’s ‘Skunk’ x ‘Afghan’ x ‘Thai’ x ‘Afghan’). Many breeders have based whole genetic collections upon ‘Bubblegum’ alone; opting to outbreed then inbred lines of the family with one another, each striving to produce the ultimate medicinal strain. We’ll leave you to do a Google search over the families many children.



The Blue Family

Like the Bubblegum family the Blue family grows stronger by the day. This clan was made infamous by the strain ‘Blueberry’, which itself is a cross between ‘Juicy Fruit Thai’ and ‘Afghan’. Certain family members are always ‘Bluer’ than others but generally speaking at least one sibling in each clan (seed pack) will display blue/purples hues in their leaf or buds (hence the name). The Blue Family grows so well that the suffixes ‘Goo’, ‘Haze’, ‘Hen’, ‘Russian’, ‘Satellite’, ‘Thunder’ ‘Velvet’, ‘Widow’, plus lots more, may be applied. This isn’t to mention the extended family members that don’t have the prefix ‘Blue’ in their name. The Blue family, like most families, also has a ‘black sheep’ or two. These split-off on their own, to make a really new family group.



The Black Family

The Black family likes to think themselves ‘bluer’ than the Blue family. As with any family argument both families could be in the wrong. The Black family gained notoriety via the strain ‘Black Domina’, which is neither black nor blue in colour (perhaps purple every now and then). However when some clever dick (another American) crossed ‘Black Domina’ with ‘Blueberry’ to make ‘Blackberry’ and all hell broke loose. The ‘Black’ now turned ‘Blue’ in bloom. Although unrelated ‘Black Widow’ (‘Brazilian’ x ‘Indian’) is another ‘black sheep’ from the White Family.

Summary

Hopefully the above illustrates some of the close and distant relationships that exist between many popular families of cultivar (old and new). Ask any collector of seeds about their hobby and they will tell you that the pursuit of cannabis genetics is addictive, sometimes expensive, yet always sprouting with excitement and knowledge. Seeds are seeds the world over, yet the plants that spring from them are each unique. Understanding the genealogy of particular cultivar provides cultivators with an edge over the process of selection, which ultimately makes for wholesome gardening.



Download your back issues of SSUK for FREE www.softsecrets.nl

Print it and you’ll know it!

Soft Secrets UK: essential reading for Britain’s growers, tokers and cannabusinesses!



The Art of Breeding



Male NYCD with Ladybug



G-13 Haze Male



Male about to explode

In the breeding of cannabis, a gardener can come up with an endless amount of combinations.

Every once in a while, everyone who smokes weed, gets a certain kind that they really like. If we were able to get a live plant of that same kind, we would have the start of a mother garden. Using this method continually, we would end up with several female plants that we know we like. It would be a room full of mother plants without any rejects.

Cloning these mothers and growing the plants to maturity will bring you tastes and smells that cannot be bought. I have been doing this technique for a decade and now have over 35 different mothers. I breed seeds and I wanted some even newer combo's. I have a strain I'm working with called the NYC Diesel. It is a blend of a Mexican sativa and Afghani. It tastes like ripe red grapefruits. Everyone I smoke it with loves it, so I thought it would be a great male to use. I planted several of my seeds and came up

with 3 males, each one showing a slightly different phenotype.

I then read where using more than one type of male from the same genetic pool can give more genetic depth to a species.

With this new information, I set out to try a genetic experiment. I placed 15 different types of female plants in my grow room and crossed them to 2 of the male NYC Diesel's. Each of the males was showing their slightly different phenotypes. One had the internodes closer together with wider leaves, and the other had more stretch to the internodes with thinner leaves. What I did was put both males in the room with the females, and as the pollen flew, the two of them pollinated all the plants. I put the females into a 12-hour cycle one week before I put the males in. This gives the female plants a head start, allowing them to put on a little resin before getting pollinated. This way at the end when all the seeds are taken out, the material left over will make excellent water hash.



Male throwing pollen

It takes the male cannabis plant about 3 weeks to start throwing pollen. When it does give off the pollen, it does so for about 3 weeks. Female calyx's that are the first to get hit make the first seeds. The females continue to make new calyxes, and as they become ripe, the male pollen touches them and seeds start to form there as well. The calyx's that get hit last don't get a chance to finish the seeds and they come out white.

The first time you cross two different kinds of cannabis together, you get a phenomenon that's called "hybrid vigor". This makes the new cross's have an extra

Buddha's Sister



strong growing strength. Making mothers from seeds like this can give you plants with an almost super strength.

In my quest for the best medicinal genetics, I am constantly trying new techniques and genetics, constantly learning about this sacred plant and all the gifts she holds. Spreading seeds around the world of this quality has brought me many new friends and adventures, and I truly think that it changes not only the topography of planet Earth, but her soul as well. For so many years, I grew only seedless ganja, because it smokes the best, but sometimes I have daydreams about what would happen if every ganja smoker grew one seed crop and spread them around....

I now have a forum on my web-site www.somaseeds.nl, if anyone has questions that they want me to answer about any aspect of cannabis, you can reach me there.

Until next time, Keep it GREEN!
Love and Light, Soma

Visit Soma at www.somaseeds.nl
www.somaseeds.nl



White Light with seed popping out

SEEDS

By Lazystain
Photos: DJS & Nas

Seeds sit at the roots of cultivation and propagation. At the base of every plant, and the beginning of every clone, sits a seed. In Nature mechanisms of seed dispersal, seed dormancy and seed development are a habitual affair, governed by the seasons and individual microclimates. As horticulturalist the scenario isn't always so simple. Cultivated seeds tend to come in paper packets, the origin and treatment of which often remains unknown by the grower. These seeds are, after-all, procreated by hand. A basic understanding about seed physiology and morphology therefore sits at the foundations of gardening success. In this issue we shall take a brief look at mechanisms of *Seed Dispersal*, *Seed Dormancy*, and *Seed Development*.

Seed Mechanisms

Many of the mechanisms behind the sowing of seed are often taken for granted by horticulturists. It is normally accepted that seeds are seeds (much and much the same); that one seed-line can/should be treated as another seed-line, under the same controlled conditions, to the same result. That failure in the garden is the result of a "poor breeder", a "bad seed packet", and/or an "infertile seed-line". Here we hope to highlight the fact that: individual seed-lines, and in some cases individual seed, seek slightly different methods of treatment in order to trigger the best patterns of growth.

Seeds are unique. Upon sowing, each seed, no matter how closely related to its siblings, becomes an individual in its own right. Let's not forget that from seed, seedlings grow into adult plants (each of which has slight if not major differences from the next plant). During the earliest stages of seed development and germination even the smallest alteration in microclimate can manipulate the physiology of a seeds potential. In this way, under artificial conditions, individual seed (and collectives) alter their metabolism in accordance with their climatic surroundings (the condition beneath which they are kept and sown). To understand these processes we shall consider seed mechanisms against the order that they occur in Nature.

Seed Dispersal

As an annual plant, and as a means of propagation, Cannabis sets-to-seed from female flowers once a year. As the nights get longer, the pollinated (seeded) flowers ripen. At this point **seed dormancy** begins! The swollen sepals, which are at this stage seed laden, begin to split and the seed are aired. Some seed are cast from their shell-pods onto the ground, whilst some seeds remain hidden far deep within the flowers themselves.

Whilst related to plant size, the number of seed per plant is often relative to subspecies and microclimate. For example, with lowland species of sativa the number of seed per plant often exceeds the number of seed per plant found in highland species of indica. During winter and spring, thawing ice and snow aid the dispersal of highland species over distances, whereas under equatorial climates, monsoon rains aid the dispersal of lowland species over local landscapes. This reflects a need for competition in certain subspecies and/or an inherited mechanism of seed dispersal in others. Those seed that are

not disturbed by beast, bird or human return to the earth from whence their origins began.

As an inherited mechanism of seed dispersal, animals play an extremely functional role in the dispersal of seed for several reasons. Firstly via digestion animals transport seed into new locations. Whole seed are passed into smelly pre-fertilised piles of guano/manure. This give seeds a nice home to over-winter in (a place where seed aren't likely to get eaten by birds). In this way a population of seed can easily find way uphill or across river. This also provides the ideal conditions for dormancy. Secondly, large herbivore (yak, deer, bison) churn-up the ground surrounding the plants upon which they browse. This creates a perfectly 'tilled' environment, upon which new seed can compete with establish weed species. Thirdly, seed-feeding bird hold no-bounds and may carry seed hundreds, if not thousands of miles on the wing. Finally, humans transport seeds for both food and cultivation.

In wild populations, microclimate plays the most important role in seed dispersal by governing the rate of soil morphology itself (the way a soil moves). This dictates the location of seed populations across landscapes and encourages the uptake of natural selection. Seed that descend from higher ground will naturally be washed into lower-ground. Some seed float while others tend to sink (ever wondered why this was?). Seed that readily float will be washed the furthest away from the source of the parent plant by heavy rainfall/snow. Likewise, strong winds aid seed dispersal by literally blowing seed from calyx and stem. Floods, storms, landslides, earthquakes, de-forestation, periods of drought and/or urban development may all contribute towards the process of seed dispersal across any population, within any environment. There are quite literally thousands if not millions of variables involved.

Where/when wild populations are subject to human intervention and/or unnatural methods of procreation, the natural ebb and flow of Nature, and natural seed dispersal, is dramatically damaged. Those warning signs that read - "Please do NOT pick the wild flowers" are there for good reason. And must be perpetuated if wild populations are to remain.

Seed Dormancy

Seed dormancy is a naturally occurring 'survival factor' found within many species of plant. Under 'natural conditions' the dormancy of cannabis seed is quite



normal. The "over-wintering" of seed is then a naturally occurring phenomenon. That is, when under dormancy (even where perfect germination conditions exist) a seed will NOT germinate!

Under "artificial conditions" cultivated plants tend to display lower levels of dormancy. The seed of cultivated plants, especially those used for food, have an unnaturally shallow dormancy period. The 'survival factor' has quite literally been bred out of popular cultivar in order to ensure a homogeneous crop/harvest. There are three different types of seed dormancy - *Exogenous Dormancy* (external), *Endogenous Dormancy* (internal), and *Combined Dormancy* (external and/or internal):

Exogenous Dormancy is governed by the external covering of the seed itself (the seed coat). With Cannabis the seed coat is relatively thick. The seed is slowly permeable to water via a fissure line in the shell. This mechanical resistance inhibits dormancy. A period of warmth, followed by a period of cold usually encourages germination.

Endogenous Dormancy involves the internal development of the seed embryo (both morphological and physiological). Whilst internal seed morphology is aided by 'warm stratification', both small and immature embryos are always found in combination with another type of dormancy (mostly physiological).

Physiological endogenous dormancy is the most common type of dormancy found in nature. An inhibitor inside the embryo and/or an incomplete chain of chemical reactions imposes dormancy. Annual species such Cannabis experiences a relatively 'shallow dormancy' period. Shallow dormancy can be overcome by "after ripening" (drying seed). A period of 'cold stratification' is then required in order for physiological dormancy to be complete. Growers use cold-rooms and refrigerators for this reason.

Combination Dormancy is displayed when several types of dormancy (often internal and external) are displayed in the same seed. This may involve exogenous dormancy (a seed coat), coupled alongside endogenous morphological resistance (embryo development), alongside physiological dormancy (a shallow inhibitor), all within the same seed structure. Cannabis seed display 'combination dormancy'. The underdeveloped embryos MUST first develop into their full size during a period of 'warm stratification' before a period of 'cold stratification' can be effective.

The best way to test levels of 'seed dormancy' against levels of 'seed viability' is to play with seeds. Try keeping collectives of seeds under different conditions (dry, wet, hot, cold...). Then sow each seed group into separate trays of soil. Place each tray into a contrasting environment (dry, wet, hot, cold...) make note and record the results.

Seed Development

Seed development is a funny old thing... it never ceases to amaze. The smaller the seed, the more amazing the transformation from genetic time capsule into seedling. Let's face it, this is where the ingrained magic of growing anything begins. What the people in white coats like to call "plant science" is in fact just Mother Nature doing her own thing.

Now people may call on the traditionalists, but seeds like things best in soil. There is just no escaping this. With 'paper towel' and 'glass of water' methods people can look, touch, and prod the seed as it germinates (and we'd like to think this is one of the best ways to learn about the habit of seeds). Seed development is however an extremely delicate process. For this reason seed development is often perhaps best left untouched by hand.

The germination and viability of seed is foremost governed by patterns of seed dormancy. Only once the natural cycle of embryo development is complete will the germination of seed successfully begin! Fresh seed are usually far less viable than those that have been subjected to dry conditions (warm stratification) followed by cool conditions (cold stratification) prior to sowing. Only following a period of dormancy can then true seed germination and accurate measurements of seed viability begin. Before this seedlings tend to be weak.

After thoughts...

Always remember that mechanisms of seed dispersal, seed dormancy, and seed development hold a direct influence over the seeds that grow and the seeds that don't. Seed may have travelled a long way from the hands of the breeder to the hands of the gardener. Any number of climatic and/or environmental factors may then have already inhibited and/or aided the initial stages of seed dormancy and seed development. It all depends upon the condition(s) beneath which the seed have previously been kept.

Spice

Mr Nice Seeds

By Mr Haze

Environment:	1,200 watts
Method:	seed to standard
Medium:	Biobizz all-mix
Nutrients:	Biobizz range
Grow time:	21 days
Flower time:	65-77 days
Plant structure:	varied Indica/Sativa
Bud structure:	varied Indica/Sativa
Scent:	fruit-spice
Effect:	strong relaxed vibe
Yield:	30-50g per plant



Spice is Nice. From a packet x5 seeds developed into x3 females and 2males. Each female looked different but healthy. Each grew with medium vigour in veg mode, much quicker in flower. As a hybrid there is lots of variety in plant and flower structure, exhibiting both ends of the Hawaiian indica and sativa spectrum. One female was put to seed (the largest one), the others were left to flower. One plant was topped to produce an LST type plant with 8 large branches with buds all the way down it. The un-seeded plants developed into nice medium dense indica types ready at 65days, the taller seeded plant took longer, around 77days. The effect is a mix between body and mind. The sativa

type smokes like old-school weed. The indica type is more floral with a fruity taste. The offspring from the seeded plant (crossed with skunk) retained the same old-school quality. The yield was average. The flowers took 7-10 days to dry and improved when cured. Spice has since been grown again.

Yumbolt

Sagarmatha Seeds

By Mr. Muddle/ Photo by Bertrand & Magali

Environment:	400 watts hps
Method:	clone in SOG
Medium:	Rockwool into Atami Kilo-mix soil
Nutrients:	Dr Hornby Iguana Juice bloom
Grow time:	7 days (approx.)
Flower time:	70 days
Plant structure:	short and squat
Bud structure:	twisted corn/wheat
Scent:	dead rotten meat/veg
Effect:	very pleasant
Yield:	14g



A Yumbolt cutting came from a friend of a friend (thanks). Having already smoked the buds it made sense to grow a clone. The clone already had good roots and some branches. It was rooted into a rockwool cube. The clone/cube

was quickly put into a large square plastic tub of Atami kilo-mix soil (to make it organic) and placed into veg for about a week. After this it was put into bloom with three other plants – Sea Of Green method, all at different stages.

After 1 week in bloom it was fed a little Iguana Juice every other feeding. The Yumbolt stood out over the other two plants (one had been removed) after 2-3 weeks in bloom. The leaves got bigger and wider but all in all the plant stayed short and squat. The flowers looked like compact sativa buds but overhead the plant looked like an indica. A strong ‘dead’ smell started during the 4th week as the buds swelled with resin. This rotten meat/veg smell took over the whole room about 30mins before the lights came on until 30mins after lights out. (Big joints were the only thing that could disguise this smell!)

At week 4-5 no more Iguana Juice was added, only plain cold water (about _ a day). The clone grew to only about 40-50cm. The main stem was slim but the branch buds were all good. The leaves were very healthy and dark green, pointing upwards, with grey undersides. It was hard to strip the leaf of ferts during the last couple of weeks because it was a small plant. During

the last 7-10 days the plant got nothing but light.

The buds twisted into little long buds (like ears of corn/wheat) and were gunmetal grey. The bottom hairs were dead. The top hairs still white and fresh. By 70days the plant was cut, but could have gone longer if left. The smell went the moment the flowers were cut (1 hour after light on). This was strange. The big leaf were cut, the buds placed upside down in an open cupboard for 10days to dry. When dry the buds are full of resin so we weren’t heavy-handed! The harvest was small, about 14g. Yumbolt tastes like pinewood. The high is uplifting, not down, but still quite strong. Good for smoking with friends in Summer.

Armageddon 47

Homegrown Fantaseeds

By Mr. Muddle

Environment:	400 watts hps
Method:	SOG clones
Medium:	B’cuzz coco fibre and Atami soil
Nutrients:	House & Garden 1part component Aarde
Grow time:	7 - 21days
Flower time:	50-60 days
Plant structure:	bushy/small
Bud structure:	spiky flowers
Scent:	mild hash
Effect:	swift stone
Yield:	14g



The Armageddon47 seed was bought direct from HGF. The packet was soon sown out to find some mothers.

Clones were taken and then sexed (this took many weeks). When sexed another plant was rooted from a

random mother to test. This clone was rooted in rockwool and placed into Atami kilo-mix soil. Then the test clone was again cloned and both plants were placed into veg.

The clone of the clone was rooted and placed into B’cuzz coco fibre and put directly into the bloom room. This clone was fed 1part component (the feed level increasing every couple of days). It grew slowly at first. As the buds started to form at 3-4weeks the older leafs turned yellow, help was soon sort and extra nitrogen was added. By this time the clone in soil was getting bigger and was ready to be placed into the bloom room.

At 50 days the clone in coco was harvested. It yielded a single bud that was very small. The branches were close together, with not much smell and many white hairs still visible. The clone in soil stretched more in bloom to form x8 branches

each with an oblong flower at the top. The plant structure would have been tall and bushy if the first clone hadn’t been removed. The buds on the 2nd plant looked like delicate flowers with thick spiky leaf and a nice covering of resin. Overall both plants had a mild fresh skunky smell, not too overpowering at all.

At 60days the clone in soil was harvested. When dry the buds tasted a lot like Indian hashish and were divided with friends. The effect of Armageddon47 is swift and long lasting, sometimes it really is a “one hit wonder”. The joints are good to smoke. It turned out certain mothers yielded more than others,,, but the test-clone in soil tasted much more like hashish than those grown later in coco/hydro. Clones put onto SCROG, on average yielded much more per plant.

Holland's Hope - Black Label

by Mr. Muddle

Environment:	Indoor 400w
Method:	Sea Of Green
Medium:	Atami Kilo Mix Soil
Nutrient:	Dr Hornby Iguana Juice
Grow time:	21 days
Flower time:	55-65 days
Plant structure:	Short and compact
Bud structure:	Dense and sticky
Scent:	Fruity skunk
Effect:	Cheerful heavy stone
Yield:	20-60g per plant



The Holland's Hope seeds were freebies from Soft Secrets UK (good

people). Having overlooked HH as an 'Outdoor' strain before, everyone

was very happy with how well HH grew indoors. All the seeds where good with slightly more females than males. The seedlings were grown in a glasshouse then placed under 400w HPS.

One plant was topped at 3-4 nodes before being placed into bloom. The other plants were kept in grow mode for a while. All the plants grew well and started to get big fan leaves and a skunky smell with age.

The first HH plant put in bloom was female. She was slow to start budding, but had a very heavy fruity skunk smell that filled the room from the start. Short and compact with thick white hairs, you can tell that HH is an Afghan. At 5 weeks bloom the buds swelled up and stood out from the main stem.

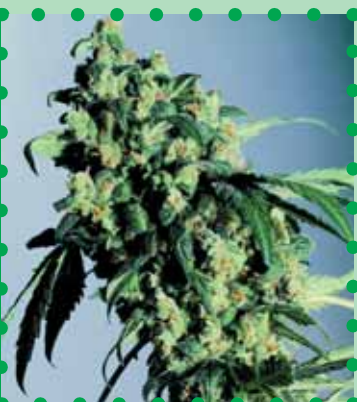
Covered in white sticky resin. At 7-8 weeks bloom the top bud was ready to chop. The lower buds were left on the plant for a week more. Cleaning the bud took 2mins. The buds took a while to dry. And made the same fruity skunk smell as when in bloom. The other plants were grown for longer. They were much bigger. Topped as bushes, most were short and compact, very sticky, and smelly. A couple of the bigger plants had looser bud formation and less sticky resin. The harvest was good. More bud than leaf with HH indoor.

Holland's Hope got the thumbs up from everyone that grew her. HH is nice to smoke day or night. It tastes like it smells, Skunky! The Afghan x Skunk genetics are always there. Roll a fat one, watch a film and get ready for the munchies!

Super Skunk - Sensi Seeds

by Mr. Clumsy

Environment:	Indoor 600watts +
Method:	Seed to Standard
Medium:	Bio Biz All Mix
Nutrient:	Canna
Grow time:	21 days
Flower time:	50-60 days
Plant structure:	Short and compact
Bud structure:	Plump buds
Scent:	Smelly skunk
Effect:	Happy with giggles
Yield:	20-50g per plant



Several years ago Super Skunk from Sensi Seeds had such a huge reputation among home-growers that we wanted to give the Super Skunk a grow in our garden.

Super Skunk is a short and compact plant that produces

opposing internodes, large thick leaves, and a very pungent aroma of heavy Skunk. Seedlings grow very uniformed from the off with good results. In vegetative cycle the plants stay nice and compact; producing wide blades (the male plants grow slightly taller than the

females). The plants smell skunky very quick, so a filter should be used with this plant (we didn't worry). Sexing these plants was easy, which makes it a good plant for beginners. The female plants were potted-on into 10 litre pots when sexed. In the main room the plants liked a low humidity and cold water (straight from the tap). We only fed the plants Canna nutes twice in flower because they were still very green.

During flower the plants grew plump buds in the gaps between the blade-leaves so that the plants looked like one big cola. These main leafs were thick and rough to touch. The plants didn't grow any wider than the pots and looked like little Christmas trees. We had no problems with mites or mold. At 6 weeks flower the buds picked up scent and started to get bigger and bigger.

All the plants grew compact with x4 side branches a plant. The side branches matured earlier than the

main bud, with thick orange hairs. We chopped some branches to test the crop. At 7 weeks half the plants were ready so we got the big scissor out and cut them down. At 8weeks the rest of the plants were ready to cut. By this time the whole room stank like a coffeshop in Amsterdam. It was cool.

We strung the plants on a washing-line to dry with a fan. It took nearly two weeks to dry the big buds. The buds looked unreal, like toy Lego or something. Some of the lower buds were still wispy and didn't have the same hit as the stuff off the top of the plant. But most of it was top quality dope. When we smoked it we were well happy. The smoke was thick and very tasty. It tasted like real Skunkweed. One joint gets 3 people battered and giggling like little kids. It's really nice for smoking with friends and the people you like chilling with. Beware! carrying the buds can be a problem - Super Skunk smells so much!

El Nino (a.k.a. Godzilla) - Green House Seeds

by Mr. Forgetful

Environment:	Indoor 400-600w sodium
Method:	LST and SCROG
Medium:	Bio Biz Soil
Nutrient:	Bio Biz Bloom
Grow time:	15-20 days LST / 30day SCROG
Flower time:	65-75 days
Plant structure:	Compact with large-fan leaf
Bud structure:	Elegant flowers
Scent:	Perfumed taste
Effect:	Heady-stone
Yield:	30-60g per plant



El Nino has the nickname Godzilla because she's a Monster! With her larger reptilian fan-leaves and dragon like flowers she dominates any garden. Growing outwards into bushes rather than up-wards into trees El Nino is well suited to closet and SCROG methods of growing.

From seed El Nino clones and roots very well taking to many different mediums including peat cups and rockwool blocks. Initial growth (once rooted) is slow, yet when established El Nino finds her feet under 400w. Topped early and then placed under sodium lamps she produces nice low-riding plants with a good compact structure.

Using LST method El Nino comes into her own at 3-4 weeks bloom. After setting herself, she starts to form elegant clusters of flowers,

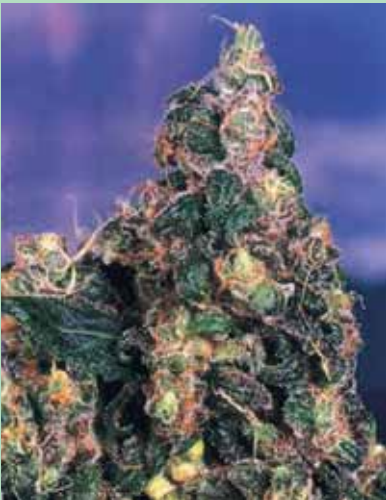
really quickly! Her jagged leafs grow fatter and fatter and start to take over the garden. For this reason, individual plants need lots of room to spread out and do their own thing.

Using SCROG method El Nino takes a bit of commitment. At one plant per m2 approx. removing the big jagged fan-leaves once a week allows light into the bud-sites below. Training El Nino is easy, but you have to do it every day to get a nice result.

El Nino can be harvested as early as 60 days to produce a cerebral uplifting buzz. Harvested at 70-80 days she turns into a monster. Godzilla! A later harvest gives for a heavier buzz for sure. Drying El Nino takes a while 10-14 days. The taste of El Nino is very pleasant, much like musky perfume with a flavour of skunk. A strain to grow again.

Original Flo from Dutch Passion

By Nature Freak



First I have to say that Flo is a special part of the Blue family. This report is based on 1 seedpack that was started indoor but was later grown on differend locations. The best optical lookin' seed was saved and is not a part of this report.

Germination: 9 seeds were started directly in soil (moist and pH tested) in

small pots. All germinated nicely in a week. Only 1 was a bit slow responding and appeared a few days later.

Seedling/Veg: Some seedling were purple/pink colored. Plants were stabilized in a good week and veg stage has begun. One was growing big like a queen, she overgrew all, while 1 other was showing anomalies on the leaves and was working slowly. These 2 plants were moved on the balcony (it was late summer). The others were more or less similar in structure, lookin' like most sativa dominant varieties in their young stage. Indoor plants were vegged 1 week, this means after good 2 weeks (seedling+veg) under 16/8, I turned the lights on 11/13. Healthy leaves appeared on the mutant after a week of sunlight. The so called queen was bigger & bigger every day. This variety simply loves the sun.

Flowering: Indoors they were growing taller and had a tendence to branch out, some plants more than others. Almost green calyxes, only a few turned purple,

starting at the beginning of flowering... Some colors also on the leaves. First buds were ready in 45 days, some were harvested after 50 days, others a week later. A few buds were ful matured (cloudy/amber trichomes) while many parts of the plant were making new, fresh nuggets with white hairs & clear trichs. This variety has a force for flowering and can be multi-harvested. The plants will not die if the conditions are fine. A relative constant pH and racional watering will care for a happy root system. Organic fertilizers are recommended and generally lower levels of nutrients for the Blue family, plant/pot/size dependent.

Outdoor (balcony): Flo flowering was an interesting process. The bud density is overall higer than indoors. The "mutant" was small with a very thick, deep purpled stem. The first nuggs from the queen were harvested while this mutant was in the preflowers stage and smelling fresh in the tropical way. The stem from the queen' was green, also leaves, but she produced small, rock hard nuggs with deep purple/red colors and a hashy aroma, a little rough. Later were also leaves & stem purpling because of cold nights in the

last weeks of flowering. The "mutant" was obviously a late flowering flo pheno. A nice colored beauty with fat calyxes, coated with a high concentration of small trichomes. Deep lovely fresh/floral aroma. This was by far the best smelling/tasting Flo.

A word about The Smoke: Phenos and environment are resulting with differend aromas and types-of-High. The deep colored buds from the queen had a bit hashy taste but no so sweet and the high was not good in relation with indoor plants. Indoor buds were tasty, some kind of a fruit mix. Soft smoke and delivered a productive up 'high which is stimulative, comfortable and enjoyable, but rather more intensive than long lasting. The best came out of the late flowering flo pheno. Excellent taste & great appeal. Smile-Up effects, ideal for doing any kind of stuff, for a happy nice day or active parties in the evening, but it can get complex if smoking much in a short time.

Overall a very strong plant. The quality is in the experience, not so much in the yield, which is average. Nice colored variety!

Super Silver Haze Seeds from Green House Seeds

By Hashstar



I got a pack of 13 seeds and out of that I got 7 females. The phenotypes varried quite a lot. 2 Finnished in 10

weeks, they were similar in taste/ smell, spicy/piney. They were not that stretchy and grew as four main

tops with lille branching after i had topped them once. One was a better yeilder with a more indica high, the other had a much nicer high but was not a great yeilder.

I had one super stretchy bitch. she ended up at like 2m tall. Loads of side branches and a very poor yeilder. Finnished in 12 weeks. Very nice high, all in the head no body stone. Super racey, u can feel your heart pumping, it also made me very paranoid. Quite a headfuck really. It had a really nice smell/taste after drying and curing like sherbert and spice. I would of kept this one if it wasnt for the poor yeild and super stretchyness.

I had one trifolite which i had to harvest at 12 weeks but would have gone to 14+ weeks this pheno stretched the least and grew nice top buds with little branching. It had the most amazing clear sativa high. Tasted like sweet spices and it yeilded ok. The other 3 were all quite similar in looks and taste and smell. They

all stretch for about 3 weeks but are not that branchy and grow nice long dagger like top buds. The taste and smell of these 3 were out of this world. Super fruit spice with a mountain air freshness to it.

One had a bit of a body stone coming hrough in the high after about 2 hours of smoking but before that was all in the head. Very clear and up.

The other 2 were pretty similar in high. All in the head no body stone at all. Very motivational. Gets me hyped up and i cant sit still, after smoking it i just have to get up and do something.

Out of all of the my keeper was one from the last 3 it had the best high/ taste /smell of the lot.

Technical details: 2 x 1000w air cooled hps lights in 2m x 1m. 8" extractor fan with carbon filter, 6" intake fan. Organically fed using guano and bio-bizz allmix soil.

Grapefruit Seeds from Female Seeds

By the Skunkist

My favorite strain for the moment. The genetic of these cross is 75% Cinderella 99. All the seeds popped well and they were 100% female. Look carefully on the seller website, these seeds (Grapefruit) are female and no feminised. Easy to grow, but need more attention than an indica! Of course.

I had 4 pheno on this batch, one short and squat at the beginning more indica than the others (4 a sativa),

with a typical Dutch smell and taste (grapefruity and shitty at the same time). Big harvest.

One perfect pheno quite sativa with a perfect grapefruit smell and taste. The one I finally kept . Not the best producer but quality & taste and high are everything!

One super fruity than can turn purple, and another one more spicy with



big buds (like C99 F2 from the GN collection). The trichome level is amazing on all these plants! The high is hot and warm and takes you far, and can be trippy like haze. My best smoke since a while!

Garden information:
Lamps:
410w – 1000w. Style SOG.
Nutrients:
Mix of chemical and organic

Jack Herer from the Sensi Seed Bank

by Mr. Muddle/ Photo DJS & Nas

Environment:	Indoor, under hps
Method:	Clones from Seed
Medium:	Soil (Bio Biz All-Mix)
Nutrient:	Bio Biz Grow, Bio Biz Bloom
Grow time:	21-35 days
Flower time:	70-85 days
Plant structure:	Tall with good branching
Bud structure:	flowers of corn-like calyx
Scent:	spicy smell, metallic musky taste
Effect:	cerebral and trippy
Yield:	40-100g per plant



Jack Herer comes with a big reputation. A special plant with lots of vigour.

Seeds are usually all viable. Small seedlings mature into large plants very quickly, which makes mother

plants ready to clone in a few weeks. As mother plants Jack Herer out performs many other strains. With semi-hard wooded stems she can take lots of abuse when cloning and usually produces a healthy vigorous stock of cuttings. In her vegetative cycle, Jack Herer grows quickly. So for the in-experienced grower Jack Herer could be a bit of a hand full! Typically she's a large plant that likes little food, medium amounts of water and lots of light during her early stages of growth. Cuttings can be flowered when rooted. But for maximum yields they should be grown on for 2-3 weeks before placing them into 12/12. Seedlings may take a week or two more to establish themselves before being put into flower. In flower Jack Herer comes into her own. Pre-flowers are visible after 2-3 weeks 12/12. During this time the plants grow dramatically in height (2/3 in height by harvest) and

side branches grow up to surround the main stem. At this point stakes are added to the pots for support. From 4-8 weeks the plant takes its structure producing many bud sites. At 8 weeks Jack Herer blooms for 3-4 weeks more, finishing between 70 – 85 days depending upon phenotype. The extra couple of weeks really make the difference when it comes to harvest. Rather than producing fat heavy colas, Jack Herer's elegance is in her long branches of flowers. If left to fully mature each individual sepal swells to create a series of elongated calyx (each looking like an ear of corn). This makes trimming an easy job. The leaf to sepal ration is quite even, but since most of the trim-leaf contains THC, this isn't a bad thing. Brilliant for making scuff, bubble and kif. As a party starter (or party finisher) Jack Herer has it all. Beware of imitations that don't quite live up to the original standard.

Haze #19 x Skunk from Nirvana Seeds

by Mr. Clumsy/Photo by Nirvana

Environment:	Indoor, under 600w hps
Method:	Seed to Standard
Medium:	Soil (Bio Biz All-Mix)
Nutrient:	Bio Biz Bloom
Grow time:	10-20 days
Flower time:	60-100 days
Plant structure:	mixed indica and sativa
Bud structure:	large skunk + haze buds
Scent:	resinous smell, musky with fruity undertones
Effect:	trippy and stoned
Yield:	40-120g per plant



Haze#19xSkunk is a large hybrid that likes lots of space, light and big pots of soil. Seeds are extremely viable (98% over 100 seeds). Seedlings tend to start leggy and find balance as they gain more height. Because Haze#19xSkunk grows so quickly in 12/12, the vegetative time can be reduced to 10-15 days (if conditions

are right). A normal 50/50 ratio of male to female seeds is displayed and males are visible at 14-21days 12/12. This all means that Haze#19xSkunk works very well from seed. Once placed into 12/12 Haze#19xSkunk really takes-off and starts growing into bushes. They start drinking water early on, and like good clean air and a dose of fertiliser every

other watering. Most plants produce many large fan-leaves that can be pruned roughly if needed. The taller plants sprout lots of side branches which need stringing together to stop them flopping on the floor. Canes are also used to hold up the heavy main colas. Usually there are three phenotypes displayed. Some small skunk plants (25%), many hybrid plants (50%) and some tall haze plants (25%). The main problem with this strain is the height of the haze plants. Some of the top colas need to be trained to stop them growing into the lamps. Mites can also be a problem if they take hold early on. Haze#19xSkunk produce lots of old/dead leaves during the later stages of bloom, which need removing every couple of days to stop mold. Harvests are spread over several weeks with Haze#19xSkunk (between 9 and 14weeks). Just wait until the hairs are 60-70% orange and they are ready to cut down. The time between harvests allows space for trimming, drying and curing the many flowers. It also lets you smoke some buds while you wait for the others to finish. The first plants down are squat indica types (40-50g per plant). Two

weeks later the true Haze#19xSkunk hybrids are ready with heavy buds (50-100g per plant). One of these hybrids reached 128g when dry! Again, several weeks later, the tall bushy haze types are mature (60-120g per plant). Make sure your scissors are sharp and ready to collect resin. With this strain there's lots of work when the trimming because most plants are so big. To smoke, the indica buds are sticky and sweet with a mild skunk aroma nice to toké in the evening. The hybrid buds are big and hazy, with a musky undertone of fruity skunk and a nice buzz (if cloning these are the plants to look out for). The later haze types produce many much smaller buds with a cerebral trippy high. This dope is very good for storing and sharing with friends. Beware the scissor-hash is trance-like, and extremely heady, almost narcotic. Overall Haze#19xskunk is cheap and cheerful, and a nice hybrid to grow and smoke. If you have plenty of room, can give her lots of light (and not too much loving), don't mind a staggered harvest and big yields, If you're a haze fan, then this is the strain for you. In fact more people should be growing it!!!

Skunk Special from Nirvana Seeds

by Mr. Silly/ Photo by Nirvana

Environment:	Indoor 600watts
Method:	Seed to Standard
Medium:	Soil (ying-yang)
Nutrient:	Canna Bio nutrient
Grow time:	21-30 days
Flower time:	55-65 days
Plant structure:	medium
Bud structure:	dense top cola, fluffy lower buds
Scent:	skunky smell and taste
Effect:	happy stone
Yield:	20-50g per plant



Skunk Special isn't all that special. It is a good cheap and easy strain for beginners. Seeds are slow to hatch. Once sprouted they have quite close internodes. The females tend to stay low and root, while the males shoot up quickly. After 3 or 4 weeks they were placed into the flowering room in small pots. Spotting the males was easy when re-potting, but the females take a while to show sex. Skunk Special does NOT like too much water or fertiliser, and likes a mild environment with fresh air. Then the plants start to smell of skunk. With too much water and high humidity some plants in the centre of the room developed mold. These plants had to be removed at 45days bloom and destroyed. The

other plants were OK and flowered quickly. Some were done at 55days. Most took 60-65 days. There where still some white hairs down low, but these went red when hung. The plants grow low and tend to level out at two heights. The plants were hung in a dark room for 10-14days. One lot was trimmed before drying which was easy. The rest after snipped after hanging which was difficult. The top buds where dense. The lower buds where a bit fluffy, but very sticky and filled the jars. The scent is skunky with a hint of lemon on some buds. Skunk Special is an average smoke for a skunk strain. The stone is mild and happy. Some plants are flat and boring to smoke everyday. Every now and then you find a couple of plants that are a nice smoke on.

By Mr Hazy

AK47 – Serious Seeds

Environment:	Indoor 400watts
Method:	Seed to Standard
Medium:	Ying Yang soil mix
Nutrient:	Bio Nova Soil Supermix + PK 13+14
Grow time:	21 days
Flower time:	70 days
Plant structure:	Medium height, with lower branching
Bud structure:	Large grape like sepals
Scent:	Woody smell, sweet taste
Effect:	Lively, cerebral, trippy, strong but comfortable high.
Yield:	20-60g per plant



After sowing out 15 AK47 seeds all 15 germinated within 3 days.

I put them into flower, after two weeks, removed 10 males, leaving

5 females. These females quickly filled the space - so much so that I had to remove the fifth plant after about a week to make more space.

Two of the plants tripled in height and had more Afghani traits. The others kept on growing. In the end they multiplied in height five times, largely exhibiting sativa traits. Now heavy bud-set began to kick in. At sometime around 50 days though flowering, I made another decision regarding space and light. I removed 5/6 fan leaves which had formed a canopy over the buds on lower branches. This seemed to work well, allowing more light to penetrate downward, significantly increasing the amount of bud in direct light.

Just after removing these leaves the remaining fan leaves died away, as did many of the shade leaves. In the

last few weeks of flowering a thick but not unpleasant stench of rotting vegetables/deadness developed which at its peak is pungent to say the least - this smell peaked, but then died down a little before harvest and didn't really carry to the buds once dried.

The buds were of a high quality. Swirls of dense pronounced sepals, like bunches of grapes. These had a good silver resin coating, orange hairs and a low leaf ratio.

The effects were a quick, strong feeling, with a long lasting high. For me the high although strong, is at times trippy, cerebral, positive and comfortable. Out of the four, I found the two Indica phenotypes were slightly more heady and less focused compared with the sativa types. AK47 has good bag ability.

Nebula - Paradise Seeds

Environment:	95w Enviro-light > 600w HPS
Method:	Standard
Medium:	BioBizz All Mix
Nutrient:	Bio Bizz range
Grow time:	28 days
Flower time:	56-65 days
Plant structure:	Short/squat
Bud structure:	Compact
Scent:	Sweet
Taste:	Sweet like mild honey
Effect:	Cerebral, enjoyable, functional
Yield:	25-30g per plant



A great looking uniform plant with quality buds, good for SOG style.

probably to poor light, they grew slowly reaching only 15-20cm in 22 days growth/28 days (from seed).

I sowed out a packet of 10. After 4-5 days 9 had germinated. The last seed failed to hatch. All 9 were healthy throughout the grow period, but due

Placing the 9 plants into flower and all remained fairly uniform for the next couple of weeks. I had 5 males,

which I discarded, then re-potted the remaining 4 into larger size pots. After 21 days flowering, I noticed they were all very uniform in height and structure. They had roughly doubled in height to around 35cm and didn't stretch much more than that. It seemed that at this stage, the most productive part of Nebula were the central colas (which at 21-23 days had significant pre flowers already).

After 28 days flowering, there was already a nice layer of resin built up on the buds, which had yellowish hairs, and pleasant sweet scent. The plants seemed very mature for their age, as if they only had a week or two left to flower, the change over the last two weeks was quite dramatic.

Roughly from day 30 to day 60, the buds slowly matured, not really changing much, they just grew bigger in size, gaining resin consistently. By

day 56 I had 4 plants, which were so uniform they could have easily been cuttings from the same mother. The plants had a high calyx to leaf ratio; resembling indica in structure and height. The smell which had developed further, was pleasant, but still mild in strength, with a unique sweetness like a tropical fruit salad. At 63 days I harvested them, but they could have gone even further. The buds looked high quality. They were fairly compact but not hard. They were covered in a heavy layer of golden trichomes.

When smoked, the smell and taste were slightly sweet, more delicate and rounded like fruit salad than sharp or sickly sweetness. The smoke was of medium density, and very smooth. The effects were cerebral and functional, more pleasantly uplifting then intense. The effects didn't really make me loose focus/ motivation, which meant I could use this strain happily all day.

NL#5xHaze – Sensi Seeds

Environment:	95w > 400watts
Method:	Bending
Medium:	Bio Biz All - Mix
Nutrient:	Bio Biz range
Grow time:	14 days
Flower time:	56-65 days
Plant structure:	Short/squat
Bud structure:	Compact
Scent:	Sweet
Taste:	Sweet like mild honey
Effect:	Cerebral, enjoyable, functional
Yield:	25-30g per plant



NL#5xHaze is a good quality high yielding plant with vigorous characteristics.

After sowing out 15 seeds all 15 germinated within 3-4 days. The seedlings started leggy with just

enough to support the main stems. In veg the plants look very dubious, until they were placed into flower. Then they started to shoot up and the stalks thickened.

In flower all 15 of the plants

were female. This worried me. I'd expected some males. Luckily I had just enough room in my garden. In the first 2-3 weeks of flower the plants grew and grew tripling/quadrupling in height. The plants looked healthy at this stage so I continued to follow my normal feeding regime. The leaf patterns were very sativa like allover, but some plants grew bigger than others.

At 4-5 weeks I tied some plants down because they looked like they could cover more surface area. One plant exhibited double colas, looking like two separate plants? This plant grew massive and needed to be pinned down on both sides. This plant yielded 126g on its own. Some plants were smaller and grew lower, showing more of the NL like a 50/50 cross. These were similar to Jack Herer in structure.

I found NL#5xHaze a tricky strain to judge. It fooled me into thinking

it was done before it was ready. In reality it goes a long time. Some plants still didn't look ready at 84 days and could go longer. The flower clusters are formed of pronounced sepals which string together to form the buds. The high calyx to flower ration means there was little, to no leaf. Limited trimming involved. With a sliver resinous coating on all flowers the buds smelt like a harvested meadow. Some plants had a hashier taste than others. Overall the plants took a long time to dry and gave off a milder smell than when growing. After a month curing the flowers picked up in scent.

These were some of the biggest plants I've ever grown. The high was strong but not excellent for everyday smoking. Overall growing NL#5xHaze is a good choice for someone that wants to try a sativa type plant, but can't wait for Haze.

Stonehedge

Sagarmatha Seeds

By Mr. Silly

Environment:	250 watts
Method:	topped in 'eco-test-cab'
Medium:	Bio-Biz All-Mix
Nutrients:	Bio-Biz Bloom
Grow time:	21 days
Flower time:	70-80 days
Plant structure:	x2 branches
Bud structure:	khaki elongated flowers
Scent:	oriental spices
Effect:	strong cerebral-stone
Yield:	10g



We were kindly gifted with two seeds in the corner of a bag of 'Stonehedge', sometime back, while chilling-out in the Grey Area coffeshop Amsterdam (who says these people aren't cool)! As soon as

we got home the seeds were planted to test them out. The two plants were both similar in appearance in vegetative cycle under a recycled 250w unit. This recycled unit is both ecological and non-bias when it

comes to testing strains (because the plants do all the work, not the bulb) and has a glass front. The medium was All-Mix with a couple of feeds of Bloom midway. One plant was slightly shorter than the other, but each were a khaki olive colour with thin spear shaped leaf that bowed at the edges. These plants weren't average skunks – but a unique blend of sativa.

The taller of the two plants proved to be male when the light cycle was switched to 12/12. Foolishly we didn't use/keep this male - like the other plant it was an exotic looking (we lives n learns from our mistake!) The female plant was topped the moment it showed sex (as suggested by the breeders). This promoted a fresh growth spurt during the first couple of weeks (plus: otherwise the plant would have grown too big for the 'test-cab'). This method produced two main branches about 50cm each, with a nice long flower developing

at the top. The lower buds stayed fairly small, getting bigger as they climbed up the stems. The light cycle was reduced to as little as 9 hours per day during the final stages of the bloom cycle and more ventilation was added (this is standard in the 'eco-test-cab').

The plant took between 70-80days to mature under this limited environment. The flowers were lighter than the fan-leaf - a fawn colour with a spicy hashish scent. The trimming took 2min. When dried and cured the two main flowers were much like the buds sampled in dam (well ok their nugs were fatter with more resin depth). All the same the scent and high where appreciably the same. An exotic hit of spicy-resin followed by a strong (and long-lasting) cerebral stone. We still haven't got round to snatching a packet of Stonehedge, which is silly, because it is one of the best sativa plants we've yet to test.

K2

Homegrown Fantaseeds

By Mr. Muddle and Mr. Rush/Photo by DJS & Nas

Environment:	Sun Lighter 125
Method:	Seed to standard
Medium:	John Innes Compost and perlite
Nutrients:	Bonsai feed and tap water
Grow time:	40days
Flower time:	55-63 days
Plant structure:	spear shaped
Bud structure:	solid mountainous tops
Scent:	acid skunk
Effect:	heavy buzz
Yield:	12-14g per plant



This was our first serious indoor grow. Our K2 seed were bought direct from the breeders. We wanted something short and compact - suitable for closet growing. Five seeds out of the ten were sown/

hatched on damp tissue. Only two seedlings survived because the tissue dried. The surviving seedlings went into little red pots of John Innes #3, #4, or #5 (we can't remember which) mixed 50/50 with perlite. We couldn't

get hold of proper fertiliser back then, so we gave them bonsai feed to begin with. Otherwise they got cold tap water. After some more weeks we noticed roots growing out of the red pots and whacked them into deeper pots.

The closet had a computer fan fitted to the back and an oscillating fan across the front. It was summertime so we wanted to keep things cool. We used a Sun Lighter 125. At 30days 12/12, switched by hand, the white cluster of hairs filled the gaps. (At this point we didn't even have a timer). These buds set-up quickly then slowed for a week or so until week 6, then they kicked in again, rocked up and looked ready.

We topped one of the plants early (through inexperience) to test the top cola. It was sacrilege! We waited with the other plant. Both continued to go over-ripe getting harder and packed-out. The remaining main cola looked like K2 itself – a stepped

range covered in crystals. We spent hours looking at these plants against their sodium sky. These two little plants set the seeds of indoor growing in us both. We were mesmerised. We finally had the courage to harvest at about 63 days.

The plant structure was like spears with 2-3 inch buds in all the gaps and a big top bud. There was nothing under thumb-size and no trim waste (just big rough leaf). The colour lasted till the end, with a nice light green condition. The bud structure was dense dark green and very sticky with orange and red hairs throughout. It smelt skunky when cut. Due to the density of the main cola it took 14 days to dry. The smoke was expanding with thick creamy mouthfuls. Not that skunky, arid like the smell. The buzz was heavy and quick. The yield was alright. We were really very happy with the quality represented.

Blueberries

Black Label

By Mr. Topsy Turvy/ Photo by DJS & Nas

Environment:	600 watts
Method:	Super cropped
Medium:	Canna Coco
Nutrients:	Iguana Juice and Top Max
Grow time:	28days
Flower time:	65-70 days
Plant structure:	tall and compact
Bud structure:	long flowers
Scent:	musky fruits
Effect:	stoney
Yield:	50g + per plant



The Blueberries were donated by Soft Secrets UK. x3 seed produced

x3 healthy plants. The seedlings were rooted in Jiffy7s and transplanted into

small pots of Canna coco. They were fed Dr Hornby Iguana Juice Grow. When the roots were visible they were potted-on into 15litre pots of the same medium. All x3 plants were super-cropped at the 5th node by removing some tops (to clone) and twisting the main stems. The Iguana Juice was changed from 'Grow' to 'Bloom' as the plants were placed into flower after 28days growing.

All the plants grew healthy in bloom shooting up to reaching about 4ft tall. The plants were big and the sativa influence was noticeable when grown besides skunk plants. One of the 3 Blueberries grew completely purple calyxes from the off-set in bloom. This plant continued to remain purple until harvest. The other x2 plants were a blue/grey tone, with the odd purple part now and then. The fans were

big, long, and wide, with pronounced saw-blade edges. All the flowers had a heavy coating of resin, which extended onto the smaller leaves as the plants finished. At 40 days, feeds of Top Max were introduced, followed by a 7day flush before harvest.

At harvest time the flowers were long and compact on the blue/grey plants, like grey carrots when trimmed. These were fruity to smoke. The 'purple pheno', while still dense, was not as close in structure. The buds were also slightly smaller. The taste/scent of the 'purple plant' had a musky-sweet twang, like chutney or jam. The yield was above average at 50g plus per plant. After a good 6month cure the colourful calyx retain the grey/blue/ purple tones. To smoke Blueberries, varies depending upon the flower sampled- sometimes

Strawberry Cough

Dutch Passion

By Mr Topsy Turvy

Environment:	600watt
Method:	mother/clone,
Medium:	Canna coco and hydro - balls
Nutrient:	Cannazym, Hesi Grow, Bio - Biz Bloom
Grow time:	21-28 days
Flower time:	65 days
Plant structure:	average
Bud structure:	long colas and round buds
Scent:	(growing) coffeehouse smell
Effect:	trance like stone
Yield:	20-30g per plant



From x2 (feminized) Strawberry Cough seeds, x2 mother plants

were grown. Each mother gave the same amount of clones. The clones

were rooted in Jiffy7 peat pellets. Some Rhizotonic was added to help early root growth. At 1 week they were transplanted into small pots of coco fiber/pebble (9:1 ratio). They were all fed Hesi Grow for the next 14days. At 3 weeks they were transplanted again into large pots. After 3 days in the large pots the lights were switched to 12/12. The plants had an indica/sativa profile with dark emerald leaves. As they started to flower the buds grew steady. After 7days 12/12 the nutes were changed from Hesi Grow to Bio-biz bloom. At 50-55 days PK 13/14 was used. Then plain water for the last week or so.

The structure of the main colas was long and full, with the leaves pointing out at 45degree angles. The lower buds were rounded, tight, and compact (like giant strawberries?) with thick hairs everywhere. All the plants had deep red hairs and a smell of Starbucks (coffee and

cakes) when growing. During the last week the plants developed hues of purple and red in the leaves. If left longer they would have changed colour more! Trimming was easy and enjoyable. The buds were hung on a string in a cool dry room. The yield was average about 20-30g each (the mothers yielded more). The trim waste was saved and made good bubblehash.

When cured Strawberry Cough smells musty (like a dusty book or museum) not skunky. The buds are quite chunky and nice to roll. The colas when broken smell musky-sweet. To smoke Strawberry Cough is Arid (says Mr Small) with a definite sativa stone. The bubblehash from Strawberry Cough is very intense with heightened colour awareness and an uplifting buzz. Good for smoking on sunny winter mornings.

Dutch Dragon

Paradise Seeds

By Mr Hazy

Method:	Standard
Medium:	Bio - Biz All Mix
Nutrients:	Bio Biz range
Grow time:	21 days
Flower time:	77 days
Plant structure:	short
Bud structure:	small sativa flowers
Scent:	musty (like old people)
Taste:	bitter/sweet
Effect:	pleasing and strong
Yield:	15-18g per plant



After sowing out 3 Dutch Dragon seeds all 3 germinated. In veg the plants were treated as normal but remained rather small (acting more like indica than sativa). At 15 days they were re-potted into 10litre pots. The growth from here was rather slow with the plants growing outward rather than upward. At 21days they were placed into flowering. In flower 1 plant was male which left 2 females. Thin branches started to develop with sativa type bud leaf on one of the plants. The other stayed more compact. The structure of both plants had good main cola but the lower buds tended to wisp out towards the bottoms. The overall height was about 40cm with both of them. As a sativa strain I expected the plants

to grow taller (like NL#5xHaze) but they both stayed squat. At 70days both plants still looked very green. The smaller plant had deep red hairs, so a week later at 77days they were both harvested.

After harvest the trim waste from Dutch Dragon had little resin than the flowers which contained more. The flowers when dry are quite light and fluffy (spongy to roll). When broken the flowers felt greasy not sticky. To smoke DD has a sweet/bitter taste (depending on how much you put in), with nice plumes of smoke. The effect is pleasing and strong, but the after buzz was jolted making me hesitate when trying to speak. The high is introvert rather than extrovert, good for starting the evening.

Royal Orange

Flying Dutchman

By Mr Tickle

Method:	Low-Stress-Training
Medium:	Canna Professional Soil
Nutrients:	guano tea
Grow time:	30 days
Flower time:	90 days
Plant structure:	tall
Bud structure:	tight and compact
Scent:	orange and rotten flesh
Taste:	unique with strong after-taste
Effect:	nice creative buzz
Yield:	above average



One seed from a packet of ten Royal Orange was grown out and then cloned (many times). The mother-plant was difficult to keep in veg. The remaining nine seeds still

remain in their original packet. Our clone was the first labelled clone placed into flower. It arrived from source rooted in a rockwool cube. We dropped the rockwool cube into

a small pot of soil, then re-potted a week or two later. The plant was then placed into flower. During the first week of flower the clone was uprooted, the soil removed from the roots, and it was placed into a bin-bag, in a warm attic for 48hours (until the security risk was over)! At this point the plant was then re-potted, pruned back and quickly re-homed. It was then placed straight back into flower.

This was indeed a very hardy plant. It responded very well to feeds of guano tea (Dry Bar Cave Bat Guano) and regained health. At the point when the crystals start to appear the plant started to turn a deep red/purple colour. A strong rotten flesh smell also began to develop. A carbon filter was definitely needed! The leaf structure was thin, but not that long. All the leaf turned a rich shade of purple with a reddish tint by harvest. The top buds were an emerald colour and really swelled out with white resin. Overall the buds were tight and compact.

The buds took about 10days drying time. For making bubblehash the orange really comes out in the taste. The trim is high quality and for some reason the dark purple leaf turned the wastewater red? The bubble was like white chocolate. When dry the rotten flesh smell disappears from the buds, which smell more like spicy oranges or lemsip when crushed. When smoked the flavours get sweeter (with a 3month cure they would get sweeter still, but we can't wait that long). Royal Orange has a unique taste, slightly sweet with a musty undertone (we couldn't pinpoint the taste). The taste stays in the mouth after smoking for a long time! The effects are quite strong, with slight waves of euphoria. The yield was above average. We will be growing this strain from clone again.

Outsider

High Quality Seeds

By Mr. Mischief/Photo CCCP

Environment:	Glasshouse
Method:	Low Stress Training
Medium:	Soil & coco fibre (50:50 mix)
Nutrient:	Bat and seabird guano
Grow time:	30days
Flower time:	60days
Plant Structure:	Short and stocky
Bud structure:	round calyx
Scent:	skunky
Effect:	happy
Yield:	---



Outsider is labelled as an ‘outdoor’ plant but the strain acts like it could also be grown indoors happily enough. The seeds were sown inside in soil and each cracked early with a nice thick root. The seedlings grew

really quickly, but stayed low. At 7-10 days the plants went outside into a glasshouse. After 3-4 days they were re-potted into a large bucket with some other plants. The bucket has a base of clay pebbles, topped

off with a 50:50 mix of part-used soil and fresh coco-fibre with added sea bird guano. A wire strawberry frame is then attached to the bucket to aid training. Outsider is really good for LST methods because the main stem and side-branches are really strong and easy to bend. After 30days the Outsider was starting to dominate the bucket with its big dark wide leaf patterns. The plant was ready to force-flower; otherwise it would have taken up more than 50% of the space allowed in bloom. By placing the plants into an even larger black bucket (with lid) ever night, it tricked them into thinking it was winter.

In bloom, under glasshouse conditions, all the plants were fed a bit of bat guano tea. The pre-flowers on the Outsider showed quicker than the other x2 female strains in the bucket. The main stem was moulded onto the frame, like an old tree trunk. The branches were trained

inwards. At 21days bloom the calyx began to form rounded buds with thick white hairs. Some branches were seeded with pollen from a male plant in the bucket at this point. The main stem was twisted to one-side and left de-seeded. By 40 days flowering the Outsider still had a nice healthy colour in the leaf. The buds had some nice resin coating them.

The main thing about Outsider is the strains overall health. The genetics stand out, which is why it was put to seed. The plant is a lot like Holland’s Hope, smaller but still fit and strong. The thick leafs on Outsider and good girth makes it stand out from the crowd. Next time some Outsider will be staying indoors with more light to make some very oily/sticky buds, for real. The smoke from the main bud was happy with a taste of skunk. Not bad for an early grow outside in spring.

Bubbledust

Growdoc Seeds

By Mr. Mischief/Photo Growdoc seeds

Environment:	400watt
Method:	Standard and Bonsai
Medium:	soil
Nutrient:	water only
Grow time:	30 and 90 days
Flower time:	65 and 68 days
Plant Structure:	pretty indica
Bud structure:	sticky flowers
Scent:	fruits
Effect:	heavy relaxing stone
Yield:	--



Ten Bubbledust were sown directly onto a damp tray of compost. The tray was placed into a prop.

at 20c. In 48hours all the seed sprouted roots and the prop. lid was removed. Next the seedlings were

thinned out. Only x4 went into new homes, x2 went outdoors directly into the vegetable patch. The x2 seedlings with the nicest profile were transplanted and kept inside on a window for about two weeks.

The two indoor plants were put in medium sized tubs and placed under a 400watt bulb for 11 hours per day. The closet measures 4x3x6ft. The soil used was designed for cannabis. Extra perlite was added to the soil to aid aeration. An oscillating fan was used. There was no extraction. A rich sickly smell overpowered the whole house at about 28days bloom. The buds were only fed water. At 35 days the flowers and shade-leaf were covered with resin - speechless.

The buds looked ready to smoke at 50-60days, the calyx swelled out and twist-up as they matured. The fruity

‘grape’ smell was then noticeable. The profile of these BD was dense, with broad fan-leaf on fat main branches. The outdoor BD where transplanted about 30days later. One of the plants was male. The other was placed under LST to make a bonsai plant with twelve branches.

In bloom Bubble Dust makes some really pretty indica buds to look at. The buds take a while to naturally dry. To smoke BD is fruity with a heavy relaxing stone. You can taste the Bubblegum and the petrol taste of Angel Dust in the undertone. Even the finer trim-leaf (not fingers), dried first, tasted fruity and gave an immediate stone.

Sensi Star

Black Label

By Mr. Clumsy/Photo by Rick (UK)

Environment:	1000watts +
Method:	Seed to standard
Medium:	Bio-Biz All-Mix
Nutrient:	Canna
Grow time:	25days
Flower time:	65-70days
Plant Structure:	Christmas tree shape
Bud structure:	Dense colas
Scent:	Lemon-skunk
Effect:	Stoned
Yield:	50grams +



We wanted to give Sensi Star a grow in our garden. From five seedlings four healthy plants were grown. The others struggled in the extreme

heat of our room. The plants were potted-on each time they grew into bigger pots. One plant grew taller in the vegetative cycle, but all plants looked very uniform with the same

leaf spread. At about 25days the Sensi Stars were placed into the flowering room. After sexing, three plants were females and were potted into final pots of Bio-Biz soil. One plant was male. It was composted.

Planted with a selection of skunk clones the Sensi Star grew slowly at first. Soon they shot up above the other clones, growing into neat compact bushes. The plant structure is not too tall and not too bushy and each plant was uniform in height and width. The coned shaped tops made these Sensi Star plants look like small Christmas trees from a distance. We noticed a build-up of THC at five-six weeks into flowering. By this time we stop feeding.

During flowering they seemed to handle high summer temps well. The leaves were all close together. We could tell that the plants needed

more airflow not more food, because some leaves where scorched. The rough edges started to yellow early and stayed like this until harvesting. Two of the Sensi Stars turned out as we’d expected. Tight buds on bushy plants with pyramid tops. One plant got groovy and made those funky colas that look like lots of balls stuck together. The hairs stayed white on this plant and were ready for harvesting quicker than the other two.

The buds shrunk some when hung. To smoke Sensi Star tastes lemony when harvesting young, and much headier when left to ripen off. Sensi Star definitely improves with age. The plants went to just under ten weeks before harvesting. The yield we thought was OK (above average) for this sort of plant in our garden.

Cheese

Big Buddha Seeds

By Mr. Fussy

Environment: 1200w

Method: Bonsai

Medium: Bio Biz All Mix

Nutrient: Bio Biz (full range)

Grow time: 20-30 days

Flower time: 70 days

Plant structure: indica/sativa

Bud structure: dense and sticky

Scent: Musky

Effect: Mellow

Yield: -



After hearing that Cheese is meant to be the stinkiest skunk around, we tried it out. Seedlings went straight

into All-Mix soil under a 400w lamp. They grew slowly at first until they were re-potted. After 4

weeks they all went under x2 600w lamps 12/12. Each plant had a mixed profile leaning on the indica side. The branches all stood at 45 degrees to the stem. The bases of each stem were very sturdy.

The leaves weren't like massive indica types, much more in-between indica and sativa. As the plants yellowed lots in late flower, it suggested that they could handle a more concentrated feed early in 12/12. Overall the females resembled a Skunk. They had dense buds with a high calyx to leaf ratio, and a good layer of sticky crystal all over. The smell wasn't a major issue when growing.

At 60-70 days a fresh bud was taken from the plant and squeezed to remove the watery chlorophyll. Then

worked in the hand to form a sticky black ball of hash. The plants when touched stank of 'cheese'. There was enough abundant resin to start harvesting the plants. The buds when dry had a musky taste. It was a lot like smoking the old-school Skunk that used to go around town.

For breeding Big Buddha's Cheese is really interesting. A male plant was used to fertilise x5 separate strains in the garden. These included an unknown Haze plant and a Flo (from Dutch Passion). The resulting seed all produced plants that when grown and smoked tasted half of Cheese and half of whatever they were crossed with. Cool.

Mummia

Growdoc Seeds

By Mr. Fussy

Environment: 400 - 1200w

Method: Seed to standard

Medium: Bio Biz All Mix

Nutrient: Bio Biz (full range)

Grow time: 21 days

Flower time: 65 days

Plant structure: diamond shape and cola

Bud structure: clusters of flowers

Scent: Stinky (petrol/skunky/ berry/spice)

Effect: Weird!

Yield: Nice



Mummia is labelled as Soma Rock Bud x Jack Herer. The seeds came in a multi-pack direct from Growdoc Seeds. From a packet of

ten Mummia only five were sown out into small cups of Bio Biz soil. Once the cotyledons open they went under a 400w bulb (on the edge). As

the seedlings turned into plants they were placed directly under the lamp. In this vegetative stage they were given Bio-Biz Grow and Fish-Mix using the suggested Bio-Biz feed program. This feed program was used throughout.

When placed into flower Mummia grew big (like the Odalisk) with vigours hardy growth. The uniformity was middling with one plant much bushier, and one plant much skinnier, than the rest. x3 Mummia were female. The main leaf had a large indica style to them on a 75% indica type plant. The biggest fan-leaves developed a rough edge and feel like sandpaper to touch. The branch nodes were uniform and tight. They didn't shoot up massively in flower, about 50% of their height in veg.

Stem structure and the canopy of flowers was fairly good. The plants each developed into a diamond

shape, with a main cola on top. After a while it was obvious that the Mummia were the plants that stank in the garden. All had a high resin structure on the buds and a good calyx to leaf ratio. The final buds were formed from lots of clusters of flowers. This made trimming a quick and easy job. The plants were then hung to dry, before placing them into better-wear boxes with the lids a jar.

The yield was nice and the clusters had a really stinky scent (a mix of petrol, skunk, berries and spices combined). To smoke Mummia is very strong with a more-ish like taste. The effects are weird! If you have a good stash of buds you can smoke lots of it (like Jack Herer). But if you smoke a little it's very strong (like Soma's Rock Bud) which is strange! Perhaps, when this strain is new to the system, its potency can really take you back?

Purple Haze

By Mr. Sneeze

Environment: outdoor/glasshouse

Method: Standard

Medium: Compost

Nutrient: -

Grow time: 80 days

Flower time: early

Plant structure: big and leggy

Bud structure: small

Scent: Fruity-skunk

Effect: stoned

Yield: not much



The purple seeds were from a friend. He told us to sow them in pots of warm and moist compost inside in spring. Then take them outside as the big leaf started to break-out from the tops of the plants. At this point the plants were green. The 2 surviving plants

grew tall quickly and needed to go into bigger pots. The stems were a split-colour red/purple and green with thick ridges at the joints all the way up. When they were dropped into larger containers of compost, the roots looked thick and hairy.

As it got cold into winter the little white hairs started to show at the joints. The plants were put into the greenhouse and one of the plants started to smell of a fruity flavour. The sticky THC then was found around the little hairs. The big leaf then went darker with a purple edge.

The outdoor temp got cold that year so a glasshouse paraffin heater was lit at night to keep them warm. Due to security, the plants were hidden from the neighbours behind a large sheet of bubble-wrap. This helped insulate the glasshouse and hide them. The plants were harvested early. Chopped at the base. Each plant was about 5 foot tall. As the hairs dried out they were ready to smoke. Stoned everyday for weeks on the crop.



www.softsecrets.nl
Back issues
for free!

Heyzooz - A Natural Born Grower

By Bart B.

We meet Heyzooz, a natural born UK grower who's only been at it for six months and already he's growing massive buds. He's a perfect example of a grower with green fingers, as compared to others who are still struggling to keep their plants healthy, green or just alive. Heyzooz offers his growing methods, experiences and tips exclusively in Soft Secrets, for your benefit.



Potting clones



Growroom at 1 week flowering



23 days in flowering – mainroom



The small growroom -33-days in flowering

"I have only been growing for a short period of time; I first put clone to rock wool in April 2003. It made sense for me to grow my own as I like to smoke on a regular basis and the rising cost of quality weed is getting out of hand.

"The biggest benefit to cultivating at home, besides the cost savings, is the quality of what you grow. If a person has done the correct research and understands how the plant works, they will have the highest quality buds available. You also have the freedom to choose any strain you like from the many seed companies on the web. My strain experience is limited to just four: Skunk No1, Afghani, Big Bud and Mind Control (MC). My favorite is a toss up between the Big Bud and MC strains. Both are very intoxicating, yet the big bud is as sweet as sugar while the MC is as earthy as you can get.

"I have always gone with the idea that if something is simple, then it's easier to work out what's gone wrong if a problem occurs. Now, considering that gardening to me is the same as what sunlight is to a vampire, I had to make it easy for myself. So I did my research. I looked into the soil growing method but it just didn't appeal to me and I liked the idea of nutrients being in the water-feed as opposed to being in soil. I looked up hydroponics but it all seemed very complicated what, with valves and drain tables, etc., but I carried on reading and eventually found what I was looking for: the passive hydroponic method.

"I discovered I could grow strong, healthy plants without having to build complicated spray systems. All I needed was some pots, potting medium, lights, water, nutrients and a room where I could fit some air

50/50 perlite is also an excellent medium. It's all very straight forward and I won't go into fine details, so if you don't know how to germinate a seed etc, do your research on the Net (or back issues of SS).

"First of all, grow your seedling/cuttings in the 1" (2.5 cm) rock wool cubes. I usually soak the cubes overnight with 5.8 pH-balanced water and a very small amount of formalex added (for clones only) – say, 3 ml per liter. This helps them along a little. Only add formalex to seeds after germination and when they have roots.

After 2-3 weeks the roots will start to show through the cubes so they can now be transferred into the 3" (8 cm) rock wool cubes. Grow them, again, until the roots start to appear and then transfer them into pots.

To prepare the pots you will need – 10 litre pots
10 litre base dish/tray
The tiny rock wool cubes (you can chop up slabs of rock wool yourself), or, Canna coco + perlite
Stone/chippings/gravel

Wash the pots and trays to clean off any chemical residue. Wash the stone/chippings/gravel as they will be covered in dust and contaminants.

with nutrient mix until it pours out of the bottom of the pot and then leave to drain until it stops dripping. You are now ready to put your 3"(8cm) cube in.

Dig out a square hole and insert the plant. The top of the 3" cube should be level with the surface of the medium and should be pressed firmly (don't forget to remove the plastic from the cube). I also recommend that you put some clay pebbles on the top of the cubes as algae can start to form.

Start by feeding them from the top until the roots show at the bottom of the pot and then feed from the bottom tray/dish. Once vegged to the desired height, switch to 12/12.

I usually water once a day up until the last four weeks, and then they start to demand more, so I ramp up to twice every 24 hours.

Since my last crop I intend to start using silicon, as I lost 2 oz to bud rot. In addition to this, I will also be using Canna pk 13/14 in the last four weeks of flowering to help provide the required nutrients. My last crop was the best result ever. With 1000w I achieved 0.61 grams-per-watt.

Veg time is strain-dependant, but an

I won't ever be getting clones off anyone else again. Spider mites are very hard to control - the key is to do most of the work while they're in veg. The spider mite's incubation period is every 5 days

Insert enough stone/chippings/gravel into the bottom of the pot so it is around 1" (2.5 cm) filled. Insert the small rock wool cubes/coco + perlite so it overfills and then compress the medium lightly down. Carry on filling up with the medium and compressing lightly until you are 1-2" from the rim.

The nutrients I use are all from Canna. Vega for the vegetative and Flores for flowering stage. I have a 210 litre barrel with two air stones and a pump that I prepare the mix in. I do this 24 hours before I need to use it, as firstly the pH needs to settle while the nutrient mixes in completely. I always check and correct the pH daily, as fluctuations always occur. Another reason I prepare 24 hours before

average of six weeks is usually what I aim for. I want the plant to be a good bushy 3-4ft (90-120cm) so I can achieve maximum yield per plant every time, given the amount of light I have. Last time I averaged 123.2 grams per plant. I know there are a lot of people out there doing a lot more, but I think it is a fair result for a basic set-up.

I think if you're using the passive hydro method, you tend to notice more things happening in your grow room, good or bad, than if you were using an automated system. You have to feed every day otherwise the plants die, so you have to be a lot more hands-on. In turn, you can react quickly to a fertiliser imbalance or a severe pH fluctuation, not to mention checking for bugs.

In short, if you keep a plant healthy and have the optimum environment, it will grow to it's full potential.

Soft Secrets asked Heyzooz some supplementary questions:

What kind of problems have you encountered and how did you fix them?

The worst thing that has ever happened was my grow room becoming infested with spider mites. I got them from

Veg time is strain dependent, but an average of 6 weeks is usually what I aim for

extraction and I was away. Here is a brief description of what I do:

"The medium I am using is the tiny little rock wool cubes known as cellmax in some places. Alternatively, Canna coco mixed with

is to allow the water temperature to rise to the grow room temperature; I don't want to shock the plants. My pH is always at 5.8 and the EC starts at 12 and rises progressively to 18 as the plant matures.

Back to the pots... Wash them through



57 days before the chop



Big Bud cola frosting at day 50



57 days: All buds hanging



Harvest in jar

contaminated clones.

I won't be getting clones off anyone else ever again. Spider mites are very hard to control but the key is to do most of the work while the plants are in veg. The

I don't like using chemicals willy-nilly and I know a lot of people who would say that every five days is overdoing it, but this is the only method that has kept things under control for me. I would recommend that you use two different types of pesticide because spider mites tend to build up resistance easily. Just alternate each time you mist.

While we are on the subject of misting, make sure you spray the underside of all the leaves because that's where the mites like to lay eggs, and then munch your precious plants.

You also need to ensure that the temperature of your bug spray is the same as your grow room. You don't want to shock the girls more than they already will be.

There are other things that you need to do. Keep the temperature down to 70-75 degrees (21-14 celcius) as spider mites love hot, dry climates. If your temperature is up and your humidity is down, then expect the mites to reproduce a lot quicker, which means you will be infested before you know it.

If you do most of the things mentioned above, you will have things under control for a while, but the one thing you must always do is check your plants EVERY time you enter the grow room. Always check the underside of the leaves for eggs and bugs. It's well worth getting a magnifying glass for this specific purpose.

Around the 4th week of flowering, I buy some predators because it is around this time when I spot a couple of leaves with bugs crawling. I release them and let them wreak a bit of havoc and that usually sees me through until harvest.

For how long have you been using this system and what you prefer about it above others?

I've been using the passive hydro method for 6 months. You can't beat simplicity.

What tips would you give to growers?

Know you're strain and check your grow area daily but don't over analyze.

How many rooms have you got and how do you organize the harvest?

I have two grow sites; one at home, which is the 1000w grow, and another, somewhere else that is, shall we say, bigger. My clones come from the 'bigger' set-up when they are fully rooted and transferred into 10 litre pots. The 400w goes on for the first couple of weeks and then I switch to the 600w. When it's harvest time, the old plants are taken out and replaced with fresh rooted cuttings and the cycle starts again.

The budded plants are then moved into the house for trimming and hung in the loft for drying with plenty of warm, moving air. Once dried, the buds are removed from the branches and placed in airtight containers for a minimum of one week for curing.

How long does it take to harvest a complete crop and hang it to dry?

Well, trimming is an absolute nightmare

when the plant is 4 ft in height, but if I remember correctly 2-3 days.

How do you control the smell?

Trusty old carbon filters.

How are the laws in your area and what do you think about them?

The laws here in the UK are due to change but only slightly. Possession is to become a non-arrestable offence with the re-classification of cannabis to a Class C drug. It will still be illegal to cultivate or even smoke in a public place, but you would be OK to smoke it in your home without fear of arrest.

This new policy has plenty of holes in it, but it is a step in the right direction. With this in mind, I feel a small amount of optimism for the future. But we will see...

Thanks for talking to Soft Secrets, mate.

COLUMN

Joe Kane

Heavy Shit

Quite a lot of shit's been happening since the last column I wrote. You might call it bad shit, but stupid shit's probably better. Busts, and lots of them. Some of them have been pretty fucking close to home territory as well.

Yeah, quite a few of my fellow entrepreneurs have had their collars felt recently. A few of my clients have asked me if I'm worried about the same shit happening to me. "Worried" isn't the right word. "Cautious" is a better one. I reckon a bit of caution is a good thing when you're doing something illegal. The trick is not to get paranoid, cause that's when you get stupid and that's when you're fucked.

I've been giving the recent spate of busts a lot of thought, and I've talked to quite a few of the people involved. Readers, the sheer stupidity of some people who really should know fucking better is amazing.

In spite of the fact that the dibble supposedly have all this high tech shit, helicopters, satellite trackers and fuck knows what else, the fact is that most drug busts are a result of either being grassed up or plain fucking stupidity.

After a lot of consideration and deep thought, this wisdom has been distilled down to a few basic and simple rules. I'm cutting my own throat spilling this stuff, but that's just the lovely sort of guy I am, so here we go:

First off, if you're dealing from your own place, don't piss your neighbours off. If you're shifting a couple of kilos of weed a week, it's a bad fucking idea to play your music at full volume day and night when people have to go to work. If you only remember one of these rules, make it this one.

Second, don't have a constant flow of people coming round to your place day and night, staying for a couple of minutes and leaving again. You don't have to be Einstein to work out what's going down. Loud conversations at the front door about the quality of your gear should also be avoided.

Having a better standard of living than your neighbours in spite of having no visible source of income is another. A lot of folks will see driving to the dole office in your new BMW as taking the fucking piss, and they'd be right.

Growing weed in the house is a terminally stupid idea, trust me. A lot of growers seem to have the idea that if they've got a couple of cats running about the house, everyone will think the smell is cat piss. Will they fuck: the stuff's called skunk for a reason, otherwise it would be called cat piss.

My space is nearly up, so I'll leave you with this one. I once knew a guy who had four or five plants in the window of his flat. Across the street from his place there was a new building being put up; it was a pretty big building, like eight or nine floors high. Anyhow, it turns out to be the new police station, and this dickwad never knew a thing about it! Can you believe it? When the boys in blue came knocking on the door he used the line that never fails: he told them he thought they were tomato plants. Did it work? What do you think?

All I think is that morons shouldn't deal dope.

Later.

Joe horribly_stoned_boy@hotmail.com

mites' incubation period is every five days. Another way of looking at it: when a spider mite lays an egg, five days later, the larva will hatch.

Therefore, you should treat your plants every five days with pesticide.

I want the plant to be a good bushy 3-4 feet (90-120cm) so I can achieve maximum yield per plant every time, given the amount of light I have.

The Coffeeshop Enigma

By LazyStrain

Many of us have been pipe dreaming about the day that we have licensed coffeeshops here in the UK. Foremost, we were thinking about the people that will own these establishments? And the people that will frequent them? We were thinking about smoking pipe in public (not always tolerated in Amsterdam)? About rolling joints on street-side tables after lunch. Then we got thinking about coffeeshop menus, scuff and the sale of hashish? We were thinking about the 'Cultural Revolution' that is hitherto to take place here in the UK. Many of these things remain as much of an enigma today, as they did yesteryear. But none the less we began to think...

Before continuing, it's worth mentioning that we can no longer blame the Police Force for the current state of cultural distension here in the UK. We think it has more to do with the carpet sweepers in White Hall. Anyhow, we are getting of the point. The point is this. Coffeeshops currently remain an enigma here in the UK. There are several places where medicinal use is tolerated (places that are sadly few and far between). There are no doubt scores of inner city smoke-dens where people can still purchase and consume cannabis. But such places operate at the daily risk of the proprietor's hospitality. So we must ask ourselves, Where does it start? Where could it end?

For starters, will trading within "tolerated" coffeeshops be conducted over or under the counter? Through the front door, or the backdoor? Will "the powers that be" enforce closing times? (or worst still opening times?) What age limits or other obligatory social constructs, such as dress code and wallet weight, will be enforced? What about the geographical and spatial location of coffeeshop outlets? Will decriminalisation extend across every section of the UK? Or will coffeeshops be restricted to areas deemed "culturally affluent" or "socially viable"? Will local councils grant planning permission to coffeeshops as readily as they do, to say, fast-food outlets and public houses? Then there will be some major economic concerns, things like advertising, productivity, and taxation (?) Next there will be questions about the proprietor's discretion and the coffeeshops'

individual code of conduct? Beyond the question of bag-limits, we mean who does and who doesn't get served? Will adolescent smokers still be hampered by government agencies, simply because there are no safe places they can smoke? Or will those that are 'coming of age' be allowed entry? What about those that don't want to smoke cannabis in designated coffeeshops? Will customer relations proliferate or simply cease to exist? Do drunks get welcomed with open arms? Cause most of us are totally ashamed to be 'English/Welsh/Scottish', when we see those drunken "British" idiots sprawled about the cobbles of Amsterdam. (Stop it! You're embarrassing yourselves and spoiling it for the rest of us!) Anyhow, will such 'cretins' be allowed entry into UK coffeeshops? (we can only hope not!) Will the attitude be live and let live? First come first served? Or "screw you" we're making money?

Inevitably, there will always be a small section of society that will do their utmost to spoil it for the rest of us! There will always be some people that find discomfort in other people's pleasure, and those that find pleasure in people's discomfort. There will always be somebody that cannot handle his/her alcohol. And nine times out of ten, there will be a fight. There will always be crack-heads, smack-heads and addicts! Then there are the age-old issues of territoriality- those that involve gun-crime, rude boys, and "respect". So we find ourselves asking 'However will Coffeeshops find safe asylum here in the UK?' Will the Government, one day, provide cannabis smokers with a sheltered environment in which to smoke cannabis? Perhaps a place that can separate cannabis from alcohol and other hard-drugs (see Clofon)? What we're really asking is this: Why is it that Coffeeshops remain an enigma here in the UK?

This is a long list of questions to which we at Soft Secrets do not hold any definitive answers. Likewise, we cannot presume that the carpet sweepers in White Hall do either. Hence the present enigma...

We do however recognise that such questions exist, and that any forthcoming answers cannot easily be brushed away! Reflective although often ignored, cannabis laws are what people make of them. At present, in 2005, cannabis laws within the UK are clearly wrong (some may argue negligent). Isn't it time we did something about changing them, in 2006?

INTERNATIONAL GROWERS

Finnish Grower Kaappikapina

Hydroponic growing in a grow cupboard

The Finnish grower Kaappikapina tells more about his experiences in the growing world. Kaappikapina is a non-commercial grower and only has a very small growing space, but this does not prevent him from achieving huge yields with his new system, after having switched over from growing in soil.

By Bart B

Kaappikapina: "The first grow I ever attempted was about eight years ago. I have never been one for continuous growing, I just do the odd crop now

this can lead to problems. So I decided to be independent, so that I could choose who I wanted to hang around with."

By growing you learn to have patience, and you also learn a lot about nature itself. Now my parents ask me why my house plants are so extremely healthy

and again when my supply of smoking material is getting a bit low. Like most growers, I started out by growing in soil, with seeds that came out of some cannabis buds I had bought. I started with growing because at a certain time there simply was no decent quality hash to be got hold of. There was only shit coming onto the market. I also did not have any inclination to start building up connections with dodgy sorts of people just to secure my supply, knowing that

Hobby without limits

"The first crop went very smoothly and I enjoyed it a lot. There is so much to do when you're growing, all the theoretical information that you have to put into real practice, the many different varieties from which you can choose, the different growing methods, and so on. I quickly grasped that growing could become



A few Chronic plants grown from seed, now 15 days in growth.

a hobby with no limits. Watching the plants develop and reacting, and then eventually harvesting them – that is a wonderful experience. By growing you learn to have patience, and you also learn a lot about nature itself. Now my parents ask me why my house plants are so extremely healthy. After all, you can apply your experience with growing to other plants too. And of course, smoking your own cannabis is always something special."

Chronic

"I only know a few names of varieties that I have raised so far. I mostly set to work with seeds I had got from friends. And these have been by no means bad seeds. But for the last two grows I've done I have got hold of more commercial seeds, and these were the White Widow from White Label, and more recently Serious Seeds' Chronic. It's hard for me to choose which variety is my favourite, since all the seeds I

Do you know that the number of fingers on a marihuana leaf can tell you whether the plant has everything to her liking? The more fingers a marihuana plant develops on her leaves, the happier she is with the state of things!



Cracking buds after 43 days bloom.



After 45 days bloom: a closer look and a 2 litre cola bottle in order to estimate the actual size of the buds

got from fertilized buds have been very good and it was nice to have such a great amount of choice. The White Widow and Chronic were very stable varieties and had a high percentage of germination. I set to work with the Chronic because the variety is well-known as a good yielder, and this time around I was going for a maximum yield. I only have a small grow cupboard (74 x 63 x 203 cms), so I needed a variety that was going to deliver a good supply of smokeable material at the end. What's more, I had heard about some positive experiences in growing from Serious Seeds genetics. I had two or three phenotypes of Chronic, one phenotype leant towards the Sativa, and the other to the Indica, and one phenotype that was in the middle. The Sativa-dominant Chronic had the tendency to develop mould when there was not sufficient ventilation. But this plant was very stable and its potency was also good. The yield was around 340 grams with a 400 Watt lamp. That is certainly not bad, is it not?"

System

"For my system I now use two ordinary water farms from General Hydroponics (36 x 36 x 35 cms). I don't know the English name for it,

but I think perhaps 'ebb and flood' is the right term. It consists of an air pump that pumps air through a tube, which causes the water to rise up to irrigate the plants above. The plants take what they need and the water then flows back down into the reservoir. As a medium I use clay granules and a few small stone wool blocks for germinating the seeds in, which I then re-plant in the water farm. So far I have only done one hydro crop, but this experience was so good that I won't be going back to growing in soil but will stick with this system. I switched over to hydro because carrying all those sacks of soil into the house then back out again may have started to cause suspicion. It was also a real pain for me to get rid of the depleted soil after the grow. My 400 Watt system was used for the growing and blooming of the plants. On soil I was getting yields of 15 to 70 grams per plant with it, and with the water farm I'm harvesting 340 grams dry weight from three Chronic plant."

Style

"Everyone has their own style of growing and that is what makes growing so special. The possibilities are inexhaustible. I have studied lots of other growing techniques in grow forums on the Net, which is a great way of boosting your knowledge. I don't think that I would have had such good results so quickly if I had not had the on-line help of fellow growers. All factors were well tuned to each other, including ventilation, air moisture and temperature. Also, the reservoir was refreshed every six or seven days. No great problems reared their ugly heads, although I did get a few pH-variations that caused me a few headaches at the beginning. I had forgotten to lower the pH-level of my growing medium before I put it into my water farm. That is why I regularly had to adjust my pH. Fortunately this did not result in my burning or otherwise damaging my plants."



A lovely bud in the middle of its ripening.

Trimming

"Because only a very small space was used for the growing and blooming of the plants the organisation of the



The many strong side-branches of the seed plant can develop nice, strong buds on them

harvest was no problem. Trimming a whole crop took between 12 to 14 hours. After that the buds are dried for

consumption is still forbidden, as is growing. But 15 years ago you could still get two weeks in the cell for having a gram on you. These days you just get a small fine if you are caught with small amounts of cannabis for personal use. It does still happen that if you are caught with several grams on you that they will come and have a look around your home. A short while ago the High Court decided that a grower with 12 plants had to pay a 240 euro fine. The size of the fine is dependent on income of the accused. So yes, it is forbidden, but in the capital Helsinki the police are more interested in the Russian mafia and car gangs who bring loads of amphetamines in to the country. Sadly, Finland is an 'Amphetamineland' with a growing drugs problem. But I reckon that even though cannabis is still forbidden, the laws on it are humane. If you're just a regular citizen growing for your own use, then there is little chance that you are going to end up in any major trouble. And now that more and more

- Did you know that the ec-value of the feed water
- and the water that flows away after each feed
- is more important than many growers believe?
- When growing indoors and ec-value of about 1.0
- is preferable. If the ec of the water being flushed
- (after each watering) is too high (above 1.5), then
- lower the ec value of the feed water, by reducing
- the dosage of the liquid nutrients added. If you keep
- to this rule, then over-fertilisation of your plants will
- be hard to do. Measuring gives certainty!

Did you know that the roots of marihuana plants adore oxygen? Many growers or add (with the aid of a pump) extra oxygen to the feed water given to the plants. The ladies just love it!

a good seven to 12 days, followed by another two months ripening in glass jars, only after which do I have some smokeable end product. In order to keep the smell down to a minimum I used a vacuum cleaner with a carbon filter attached, and of course you must not forget to keep the door well shut."

What tips do you have for fellow-growers?

"Be patient and read a lot about how to grow cannabis. Plan your crop well before you actually start. Try to find good seeds. Learn from your mistakes and don't be upset if something goes wrong; the next time things will go better."

What are the laws like in your area, and what do you think of them?

"In the last ten years I have seen the mood surrounding cannabis take a leap forward here in Finland; it is getting more relaxed. Personal

European countries are introducing more supple cannabis laws that will surely have positive consequences on the leadership in my own country. At least, I hope so..."



A close-up of a sweet Chronic bud.

Canadian grower Kootenay

By Bart B.

Power growing with 28.000 watts!

In his series of interviews with foreign growers Bart B. talks this time with the Canadian grower Kootenay. He began growing commercially around ten years ago, back when thanks to an explosion in indoor growing the Canadian city of Vancouver was nicknamed 'Vansterdam'. Having started out just growing a couple of plants outdoors, but after a year of indoor growing Kootenay developed a passion for the cannabis plant.

"From that point on I just could not get enough information to cram into my brain about how to grow this fantastic plant. I just get off learning as much as I can and I try to continuously improve. I think that when they say that cannabis is addictive they are really referring to cannabis growing being addictive.

Up to the present I have grown many varieties of cannabis, so many that I have completely lost count in fact. If I had to take a guess, I'd say I have certainly had at least 100 varieties in my grow room at some time or other. I have a few favourites that I especially love to grow. Breeder Steve's Spice of Life varieties such as Sweettooth 3, Shiskaberry and Ultimate Indica in particular are a pleasure to grow and smoke. I still have a few Blockhead seeds from him lying around waiting to be tried out. On top of that, I grow a lot of BC (British Columbia) Hashplant and Chemo in my gardens. These are favourites among my friends, plus both weeds look terrific. This is something that is very important around here, because the better the weed looks the easier it is to sell. The BC Hashplant is my all-time favourite for growing commercially."

System

"The system that I use for growing is the hydro-bucket system, which consists of 20 litre-sized buckets each with a four-litre mesh pot (pot with holes in) inside. Below the bucket is a hose that allows the feed water to flow back to the reservoir. The system is fed by 1800 gph pumps, one pump for each row of six lamps in the room.

Each plant is fed by two drippers that via a branching layout can keep the feed water in constant circulation. The nutrients are kept flowing all the time during the blossom. The excess flows back again to the reservoir. It is essentially a re-circulation system that uses about 60 litres of feed water per day. During the growth phase the plants receive one minute of feed water every five minutes. The plants seem to do better by having different feeding cycles for growth and bloom.

I have tried earth beds, hydro tables, soil in pots, and hydro-buckets for growing cannabis. The earth bed system is my favourite for raising a lot of plants with a short pre-growth period, but the yield for a 12,000 watt grow room is nine kilos every seven to eight weeks. If all the climatological variables are just right then up to 12 kilos per space can be achieved.



The set up of the hydro-bucket-system, tidy and orderly – as it needs to be..



The clones are nicely established and grow at top speed.

The average yield for a 12.000 watt grow room is nine kilos in seven to eight weeks.



A few weeks later it has become a veritable jungle.



Whopping great plants can support whopper buds

I give the plants four to five weeks of pre-growth and then switch them over to blooming. This lasts, depending on the variety, for seven to eight weeks. I get about 120 to 200 grams off each plant.

During the bloom period I feed the plants with General Hydroponics' bloom- and micro feed with no additives.

It is my opinion that the simpler you keep it for yourself, the less things can go wrong.

One of the problems I have encountered using so many lamps is with the ventilation. You can't just go re-building a whole house to accommodate extra ventilation holes. I solved this problem by removing all the old doors and putting in new, cheap doors. In these new doors I make a ventilation hole that is sufficiently large to keep the whole grow room optimally provided with CO₂ (carbon dioxide)-rich fresh air. In this way, you don't have to go and bore massive holes all over the house.

I have been using this system for several years now and I'm mostly a grower in soil, but I find this system in the end produces less waste remains at the end. It practically runs itself once you everything set up right. With less waste produced, the neighbours have less chance to become suspicious.

Thanks to the huge number of plants I need, I make my own clones. I take them from my mother plants. I only save a mother plant if she has exceptional qualities. I let the clones root in Jiffy pots and use Rootech gel on them. This is a root hormone in gel form that is clean and easy to use and works a treat to make clones take root. In a separate room I have a rack for clones with lamps hung above it. A rack offers space for 660 clones, but I only stick 200 clones each time in it. The most important aspect of cloning and to make sure that the clones root 100 % is to make sure the mother plant is healthy and disease-free. Also, the root temperature needs to be kept above 20 degrees, so that the roots will develop nice and quickly."

Grow house

"This 28,000 watt grow house has two rooms with twelve 1000-watt hps lamps in them. On top of that I have a further, separate, room with 4000-watt metal halide and hps lamps for the pre-growth of the plant. The cloning room is in the wash room which is always warm and moist.

Each 12,000 watt grow space is ready for harvesting at the beginning of every month, when new plants are moved from the grow room to the bloom room. Clones from the cloning room are moved at the same time into the grow room so that these too can be raised into mature plants.

It took about a month to get the whole house ready for planting the first clones and to ready the first 12,000 watt grow room. After that it took about another whole month to raise the clones into mature plants of about 40 to 60 cms, after which they could be placed in the bloom room. The hydroponic bloom room

contains 48 plants. So everything together took about two months for setting up and pre-growth, and then another two months before the first harvest was ready. In total then, four months, after which every month I had a room ready for harvesting.



With buds like these you can literally blow the socks off anyone!

The biggest problem in building the large grow rooms was getting everything I needed indoors without arousing suspicion. I'm talking about 28 lamps, carbon filters, extraction ventilators, and so on. It is not easy to bring all that stuff in without being noticed.

Also, it is too much work for one man alone, which is why I enlisted a few good friends to help out. With five of us it took about two days to get just one room harvested and all the plants trimmed. I chose to harvest and trim the plants wet, and then remove the buds from the plant to let them dry out later on special drying racks.

I used to use the Canadian version of the Dutch Kermit, the Big Red Schredder, with which to trim the buds. But I went back to using simple shears. I think that



An excess of light creates weight. Enjoy the view.

trimming by hand just results in prettier buds. The Big Red Schredder - for those who did not know - is a trim machine to which you connect a vacuum cleaner which sucks up the trimmed leaves while it works.



The buds of the plants grown in soil.



There are 12.000 watts hanging in this grow room.

Thanks to the huge quantity of cannabis on the Canadian market, the weed just has to look really good, otherwise you can have trouble selling it. That is why I chose to go back to hand trimming, so that

In a separate room is a rack for the clones with lams hung above it. One rack has room for 660 clones, but I only put 200 clones each time in one rack

I could get a better price for the buds I'd harvested. If there are not enough crystals noticeable on the buds you are going to have some trouble with it. The colour and the shape of the buds is also very important. The more red varieties are less welcome, because they don't look so good in a plastic baggie. The Chemo variety that I grow has an unusual large amount of crystals on its buds. It is an enormous yielder and the demand for this variety is very healthy.

Once the buds are dried and bagged up they are given time to ripen. In doing this they take up moisture again. So after this they are given a second drying out, then they are bagged up again. All this takes about a week and these buds are destined for commercial sale.

For personal use the buds are laid out for drying for two weeks, and then all the buds go into glass jars where they are left to ripen. Well-ripened buds always taste the best.

In the house there are two enormous carbon filters that are connected to extractor fans in each grow room that keeps the air fresh. These also do a good job of keeping the odour down. They are worth their weight in gold."

To finish, I asked Kootenay a few more questions.

You grow on soil; do you notice much difference to growing on hydro?

"My grows on soil tend to yield smaller than when I use the hydro-buckets, but the quality with both media is pretty much the same. The biggest difference between growing on hydro and on soil

A grow on soil begins in four litre pots for the duration of the growth phase, after which they are re-potted into 12 litre pots to give them enough rooting space for them to achieve a nice bloom. A good rule of thumb is one litre of soil for every 25 cms of plant height. I pre-grow the plants on soil for a maximum of one month. In some cases, if we're talking about a compact plant variety, a little longer. On average a plant yields about 22 grams per litre of soil, but can sometimes be a little more or a little less.

Depending on the number of plant that are used, I tend to give them water by hand. That takes longer than with an automatic watering system, but you can better determine the needs of the exceptional plants. If I'm growing on soil then I do use an automatic watering system for supplying the plants with nutrients.

After the harvest, the left-over soil needs to be processed. First I put it all in garbage bags, then I take these to the farm of a friend. There the soil is spread out so that the accumulated salts in it can be washed out by the rain. Sometimes we

use a few sprinklers. After this has been done my friend can use the soil in his own outdoor garden."

What tips do you have for other growers?

"K.I.S.S. – Keep It Simple Stupid! Wise words. Don't make the business any more difficult than it has to be."

What is your opinion of the laws that operate in your region?

"For a commercial grower the punishments are higher than for a regular grower. I have the feeling that some people do what I do to make money which they use to finance criminal activities. In doing so they create hassle for their own people, through the violence that goes hand in hand with the activities they choose to finance."

A last comment for other growers?

"I hope that the majority of people consciously grow safely and make sure they know what they are doing. Electricity and water do not go well together, but if you set things up safely it all works perfectly. Further, I have plans in the future to grow in a large greenhouse. I'll keep you posted!"



After much heavy duty trimming, this is what is left. The bitter end.

EXTRA

No more dirty hands and yet get rid of unwanted visitors in your hobby room?



It looks like a fairytale but it can be done! With the introduction of the new and very effective KS King Shine pesticide you will certainly get rid of the uninvited guests.

Flies, bacteria's, moulds and other pests will be weeded out without damaging your own growth.

Put the pesticide on a saucer, light it and the rest will work of its own!

It is important though that during the process you will stay away from the place for at least 6 hours to prevent irritation from the eyes and the air passages and course to let the pesticide continue its work

For info call +31(0)10 4666 050 (KS King Shine)

English grower Sticky Buds

A gram per watt

By Bart B

The English grower Sticky Buds is a big fan of hydro cultivation, especially the NFT system. Every new system needs a bit of getting used to, and despite set-backs you can still get very good results while getting to grips with it. Sticky Buds tells us more about his way of growing and is more than happy to share his 'Blockhead scrog' grow technique with SSUK.

"I started growing in March 2002, so I have been growing for a good four years now. The stimulus to begin with it was seeing the grow op of a friend of mine. Prior to that, back in the '80's, I had grown a few cannabis plants, but looking back at that period I can now say that I knew practically nothing about growing cannabis. I even think I did not know what a bud was back then. My friends and I just tore the big leaves off the plants and smoked them when we had run out of Moroccan hash once again. I can not say that we ever actually got really stoned from them, but it seemed to us better to smoke 'something' than just stay straight the whole time. But yes, of course it was not very nice to smoke, dried under the grill as it was. Plus it was really irritating on the lungs."

Super grow

"So as soon as I saw that super grow of one of my mates, I was immediately smitten, and just knew that I had to start up something similar myself. My mate was busy growing some Bubblegum in a hydroponic system, and the plants were about four weeks into their bloom, so about half way. It was a gorgeous grow room, filled with little buds that were developing rapidly. After I had asked him a few questions I felt I had all the information that I needed to be able to set up my own grow op, and I spent the whole trip back home with my head full of ideas. The only thing I needed for my first grow was the initial investment to be able to equip myself with the necessary materials. Living on the dole in England this seemed impossible, but I managed it by splitting the costs with a good friend. The plan was to split the first harvest in two and share it, and hopefully with that I would have earned enough to pay my mate back his half of the investment."

No pesticides

"No sooner said than done. I absolutely love cannabis; it's just something that that feels right. It is really something for me. The chances are great that if you get hold of decent weed to smoke in England you have probably been smoking hash only for years. The fact that I can now grow the very best quality cannabis possible, and that I know for sure that what I smoke is free of pesticides and other undesirable additives, makes it all more than worth the effort. As well as that, it is of course a huge plus that the stuff I get to smoke is practically free, once you have taken off the nutrient and electricity costs."

Grow system

"To date I have only raised four varieties. These are White Widow, Blueberry, Blockhead and Lifesaver. I have another

ten varieties sitting around that I have not yet tried to grow. My favourite at the moment is the Spice of Life Blockhead. The other three varieties also have their qualities, but the Blockhead does it for me every time. And it is also the variety that my friends tend to turn down because it is a little too strong for them.

I love to grow it from clones on stone wool in an NFT system. Once the clones are well rooted in their stone wool blocks, I start giving them quarter-strength nutrient (700-900 ppm, Canna Flores) until they are fully settled in the system and I can observe sufficient growth in the plant and in the roots. Once this point is reached I raise the dosage of the nutrient to 1400 ppm, which is around half strength. I stick to this throughout the whole grow cycle. In the reservoir I just let the quantity of water fall until I need another 30 litre batch. Then I add enough nutrient for 30 litres at half strength to the reservoir and top it up. The more time that elapses, the greater the chance of salt accumulation, but this usually does not occur until the end of the grow cycle. Then it is a good time to rinse the whole set up, and I do not need to spend too much time and attention on it."

Nutrient Film Technique

"I now have so much growing experience that I can see when there is over-fertilizing going on. If I notice it then I make sure to the whole set up a good rinse through with a whole reservoir of water. I have only had to do this once, with a variety that apparently preferred a lower dose of nutrient than the regular varieties I tend to grow, namely Lifesaver. On top of the normal bloom feed, in the fifth week of blooming and for two to three weeks (depending on the variety), I add pk 13-14 to my feed mix. But whatever variety I am growing, I always stop giving all feed additives at least ten days before I plan to harvest the plants. The plants then have sufficient time to use up the remaining nutrients. The system that I use is called NFT, or Nutrient Film Technique. To explain it in simple terms, your plants stand on a gently sloping surface just above a reservoir. A pump sucks feed water out of the reservoir and it then flows in a very thin layer over the surface and over the roots, after which it flows back in to the reservoir. This is kept up continuously."

Coning

"These days I try to meet all my personal needs by using two NFT systems (scrog) and a few plants grown in soil. When my clones get going without any trouble, which is what happens 99.9% of the time, then I can always reckon on about a kilo dry weight of bud for every 1000 watts I use (in the form of a 400 watt plus a 600



With 'scrogging' we try to keep all the buds at the same height and fill the entire square metre. We spread out and tie the branches over the whole surface area.



These pearls of Blockhead have been blooming for three weeks.



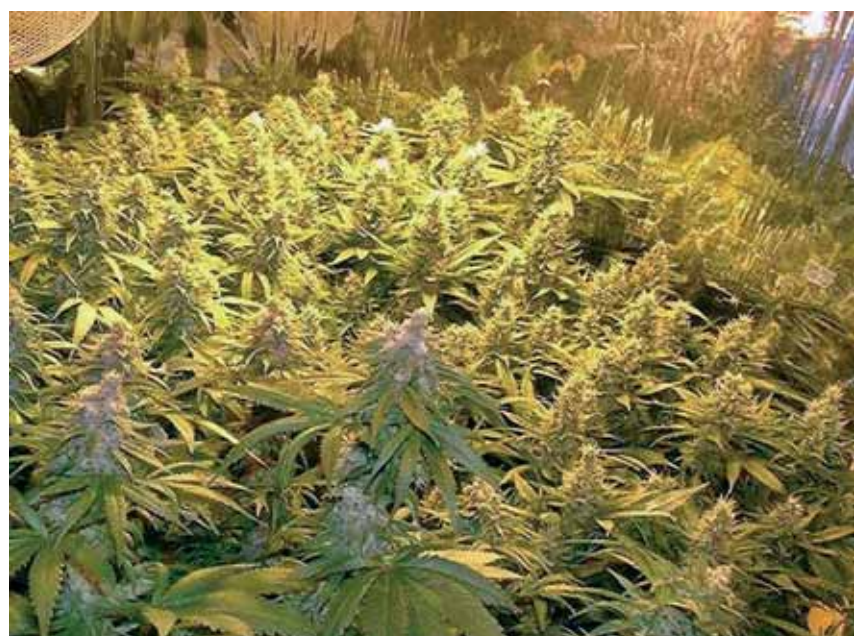
After 27 days we have a sweet little garden.

"But whatever variety I am growing, I always stop giving all feed additives at least ten days before I plan to harvest the plants. The plants then have sufficient time to use up the remaining nutrients."

watt lamp). My last grow was one of the very best to date, with a yield of 1.2 kilos.

Step one is to make some clones. Step two: the clones are ready to go in to the system three to four weeks later. Step 3: once they are in the system they are given ten days' of pre-growth, after which they are put into a 12/12 lighting regime and they begin to bloom. The time it takes for the clones to be ready and the harvests are coincidental, so once one harvest has been gathered then new clones can be put

straight in to the system. This means that there is a period of twelve weeks between each crop. I don't really have an average yield per plant, because one plant in an NFT system can yield three times that of another. Why this is so I have no idea. Sometimes I might get one single bud that increases to an amazing size and all the other plants in the space are just looking at it. The only plants that I can give an accurate average yield for are the plants I have growing in soil. I reckon that they each give about 85 grams."



After 47 days of blooming there's nothing but cracking good buds.



After 63 days of blooming it is harvest time. The plants look fantastic.

Deep Water Culture

“The only problem that I have ever had was during my first grow. I’ve got a tip: growing on an NFT system only works with clones. My first grow came straight out of seeds. The plants were given two months pre-growth and the mass of roots was so huge that the plants all began to strangle each other. Half way through the bloom period they all began to die off, to the extent that I was happy in the end to get anything to smoke at all. I had 170 grams off ten feminized White Widow seeds!

“A tip: only grow with clones when you’re using the NFT system.”

So the first system that I used was NFT, but I have also grown on a DWC system (Deep Water Culture). After the first disastrous grow, the one I was just talking about, I was keen to step over to DWC. But I thought I’d just give the NFT another go first, this time a test with clones, and the end result was completely different. This second attempt gave me nearly a kilo and the plants stayed healthy throughout the whole grow. That convinced me to carry on with NFT. The system has



Day 63: A top-down view of the right hand side of the Blockhead plants. Mmm.

been up and running for two years now and I can not imagine growing my weed any other way. At least, as long as the system continues to work so well for me. There are many systems for growing hydroponically, but personally I find that that this one makes for more oxygen in the water than others.”

Harvest time

“At the moment I have just a single main growing room, and a small cupboard where I have a few lamps hanging for keeping my mother plants in and for keeping clones I’ve taken. When the time comes for harvesting I roll a few joints, make something to drink, set off in the direction of the bloom room and just set to it. To trim

the whole crop and hang it up to dry keeps me occupied for about eight hours flat. That is why I try and spread it out a bit, doing a few hours a day for a couple of days. As for problems stench problems, I have never really had any – as far as I know, anyway. Just smoking a joint creates more nuisance than trimming the whole crop. If I have to combat the smell, I use the circulating air fresheners. The extractor sucks the air straight out of my grow room and away. The only time that I smell anything is when I turn off the lamps, but even then it just smells like the grass has just been mowed.”

Is your growing method different from that of other growers, do you reckon?

“Good question. I can only compare my growing with that of friends who grow the same varieties as I do. And to be honest my plants look a damn sight better. The big difference between us is that I have built a dedicated grow room, with ventilation and so on. While they have more, erm, sort of thrown something together in their attic.”

What tips do you have for your fellow growers?

“Find a good web site and read, read and read until you’re sick of it. Much of the information you take up will at first not mean much to you, but once you have actually got down to growing then all this basic information will mean you have a good chance of raising something pretty decent at your first attempt.”

What do you think about the laws in England?

“Well, in England cannabis has been downgraded from a Class A drug to a Class C, so the punishments and what not have become less severe. That is a good step in the right direction. But to be honest it makes little difference to me. We will all just continue to smoke cannabis quietly at home without worrying too much.... but what about growing? That is more important to me. Hopefully it will not be much longer now before a limit is set out as to how many plants we can grow without being branded as a dealer or a criminal. Until that day comes I will continue to have no trust in or respect for the law...”



The eventual yield of smokables from all the hard work: 672 grams from 600 watts.

STRAIN GUIDE

White Pearl (99% female) – High Quality Seeds

by Mr. Topsy-Turvy

Environment:	Indoor 600-1,200 watts
Method:	Super-cropping
Medium:	Bio-Biz All Mix soil
Nutrient:	Bio-Biz Grow, Bloom, TopMax
Grow time:	30 days
Flower time:	65-70 days
Plant structure:	Tall and wide
Bud structure:	Carrot-like colas
Scent:	Mild honeycomb
Effect:	Stoned
Yield:	45-65g per plant



White Pearl is a hardy feminised strain that geminates well indoors. All 10 seeds hatched. The seedlings raced in height from the start. Some

showed longer nodes than others. The overall structure of White Pearl (in veg) was tall and slim for a “White” strain. As WP matured she

was super-cropped by twisting the branches, and removing the tops to control height. The removed tops were cloned. WP is feminised, so plants were placed into large pots early on - giving them a good start. WP developed a nice healthy root system. As cuttings WP works really well using Sea Of Green method. The result is single cola plants that need little trimming.

In bloom WP is very slow to start, with little difference in bud growth between 21 – 28 days. At 30-40 days 12/12 WP starts to flower-up and grows fast buds. Two plant types were noticeable. A sativa type with thinner leaf-blades and an indica type with wider fan-leaf (our favourite). All the seeded plants were about the same height (4ft tall). Each plant took up lots of water. Some of the sativa type WP didn’t like too much heat and started to “fox-tail”. To combat this a 600w lamp was removed from the garden to reduce temps.

The smell of WP when growing is quite strong (especially when rubbing against the plants). The flowers fill out well and there are few gaps in the structure. The buds form long carrot-like colas covered in THC. The hairs turn deep red at harvest. Seeded plants yielded around 50-60g on average. Cloned plants slightly less.

Drying and curing, WP gives off an unpleasant ammonia smell (typical of the “White” strains). The indica types smelt sweeter than the sativa types. All improved bouquet after curing in mason jars (giving a musky honey/orange scent). WP has a medium to high resin content with average size trichomes.

To smoke White Pearl has a musky flavour with sour undertones. The buzz is quite heavy - ideal for hangovers, vaporising and generally getting stoned.

Dutch grower Foppe

By Bart B

Outdoor fun in Friesland



By beginning early in the season the plants can reach enormous dimensions.

Every year the Frisian grower Foppe succeeds in transforming his outdoor garden in to a veritable paradise. He packs his garden full with marvellous, unusual native and foreign cannabis varieties, from tiny blooming clones to strapping, broad ladies as tall as a tower. All of this does not happen with a fair amount of toil and sweat, but Foppe's green fingers somehow manage each time to make sure that the whole enterprise comes to a flower-rich ending. Soft Secrets spoke to him about how he manages it.

"I have been growing successfully since 1995. That is when a friend of mine starting growing hemp in the small garden at his parents' house. I was immediately impressed by the appearance of the three metre-high weed plants. A year later I began growing myself. I got hold of some hemp seeds from the feed tray of my parrot, and planted these in a small pot. I put this in front of a South-facing window, so it was nice and sunny. In that first year I made pretty much every wrong decision it was possible to make, but I did still manage to get a few plants to bloom. But the harvest was sickly, overrun and crawling with insect life. So the end result in October was pretty abysmal. After that debacle I started to work more seriously to raise proper cannabis varieties, though still with the seeds I had discovered in my buds. A year later I started out using clones and good quality seed from proper seed companies."

Favourite varieties

"To date I have already raised 35 different cannabis varieties, and I have even made some cross-fertilisations between seed plants and clones. I did this by spreading the male pollen from the seed plants onto the flowers that developed on the clones. My all-round favourite is an Amstel Gold (Passion1)

Pheno that I got hold of in 2001. Other varieties that I value highly are the German-made cross of Early Durban with a female White Widow, and an Alpine Rocket from seed that I came across in a seed swap with a friendly Swiss grower. All these varieties gave me a very 'up' (active) high that I just love.

In the outdoor season of 2003 I grew Swiss Miss, Black Domina, Shiva Shanti 1, Jackfizz (Cital x Jack Herer), Alpine Rocket and a number of my own crosses, and as I have every year, attempted to get these to bloom into plants that gave me cracking buds, smothered with resin and nice and fat.

The first seeds I germinated between wet paper towels in Petri dishes; that would have been around the beginning of February. After germination all the seedlings were put into small pots that were filled with ordinary potting soil. The grow room was a small cupboard with two 18 Watt bulbs inside, which ensured enough light

hours for a respectable growth, and a timer to control the whole light cycle. The benefits of regularity - plants just love it! The long, thin fluorescent light bulbs are very weak compared with the systems like high pressure sodium, but they are efficient enough for a small home grower. Some of the good qualities of them are that they produce very little heat and the energy costs remain very low. The seeds I had germinated came from a few friendly growers I had met online on one of the many cannabis forums, and thanks once again for those. The Black Domina

110 litres, but growing in full earth is less of a hassle. This is mainly because it costs much less time with watering. Also, the plants grow more healthily, they are more powerful and they yield more. With a few crackers in my outdoor garden growing in large pots in one particularly roasting summer I was having to give each plant about 100 litres of water per day. During the flowering period I feed the plants with an organic liquid nutrient, such as biobloei from Biobizz, which I give them twice a week or so, depending on the weather.

Other varieties that I value highly are the German-made cross of Early Durban with a female White Widow, and an Alpine Rocket from seed that I came across in a seed swap with a friendly Swiss grower.

clones were obtained from a clone farmer, and the seed for the Swiss Miss was bought in a local grow shop. In order to be able to raise the plants well it is important that you use nutrient-rich soil that drains well, so that the soil does not remain wet and has enough air in it for a rapid root development. As well as that it is also vitally important to water regularly and to use as large pots as possible. I use pots of between 50 to 110 litres.

I don't buy ready mixed earth but prefer to put my own mixture together. This consists of a good quality compost and / or 50 percent coco fibre, 30 percent Perlite, 15 percent self-made compost and 5 percent premix. During the whole process of mixing the soil I add Maerl-chalk to it in order to stabilise the pH, and bone meal in order to enrich the whole thing with extra phosphorus. Once it has been well mixed I spray the mixture with water and leave it to ripen for two to four weeks in plastic sacks. Before I actually use the soil mix, I give it all a final vigorous stir. By the way, I use rain water to quench the thirst of my plants when it is to hand. Nevertheless, I do prefer a nice dry sky during the outdoor season. Once a week I make sure they are given additional nutrients by using liquid fertilizer, such as Biobizz groei during the growth period. As I said earlier, I use pots of between 50 and

Most varieties begin to bloom around the beginning of August, or a week or two later. Early bloomers such as Amstel Gold / Purple / Durban Poison / Hollands Hope finish their bloom around the end of September. The majority of indoor varieties such as Shiva / Cital / White Widow / Skunk only finish their bloom around the middle or end of October, when there is a large chance of bad and wet weather, thanks to which the chance of getting smaller yields or being struck by moulds and other annoying pests are increased quite a bit. In the critical last weeks of blooming I used to put the gorgeous ladies under a covering, in order to give them a bit more protection in this vital period. I would do this only when rain had been forecast, or when a particularly nasty-looking looking cloud came nearby. Prevention works."

Troubles in Paradise

"The spring and summer in Friesland are favourable for the plants to put on growth, but sometimes we do have to put up with severe hail storms or heavy rains with strong winds. Last summer it was very hot and dry, and that also created its own problems. The biggest of these where I live was botrytis infection, which strikes when the outdoor air is particularly moist - as it was during the second half of September and the first weeks of



An Alpine Rocket. Gorgeous!



A lovely bud from the Alpine Rocket.



A few Swiss Miss clones also provided a decent supply of smokeables.

October. Periods of mist, rain, wind combined with mild temperatures are a disaster, especially for the larger buds because these soak up moisture from the air, and get rid of this moisture more slowly than the smaller buds. I have noticed that it can be worthwhile treating your plants so that they develop lots of very small buds rather than fewer, larger ones. During this dangerous period I check the buds every day for the presence of mould, by carefully inspecting the leaves on the hanging buds for discolouration. If any is discovered the infected buds are immediately removed completely.

In order to be able to raise the plants well it is important that you use nutrient-rich soil that drains well, so that the soil does not remain wet and has enough air in it for a rapid root development.

I did have a few problems during growing some Jackfizz variety that had been started off in a relatively small pot. I had to transplant her from a 50 litre to a 200 litre pot, because the 110 litre pot was too small. But this was not the biggest problem by any means. Half way through the bloom period I decided to stick the plant in the middle of my garden, and so give her the opportunity to enjoy an abundance of sunlight. Thanks to a bit of inattention, I had not taken any notice of the weather forecast that had predicted a chance of heavy gusts of wind in the late afternoon. When I came home it was already too late, because the Jackfizz was broken in two. And I had used several bamboo poles for support, but these were all snapped by the storm. I tried to save this Jackfizz, but she could not be repaired and I could not do anything except get what early harvest I could off half of it.

The summer heat waves also led to all my male plants, that I had raised to do a few crosses with, drying out. It was difficult for my brother to keep these plants moist, because the top later of soil had become really hard after a full day of beaming sun and gusting wind, thanks to which the water ran off too quickly through the cracks in the pot and was not given enough time to be taken up by the plants. I should have pointed out to him to give them water more slowly. So the plants actually had been getting very little or no water, and were total write-offs. So keep your soil good and moist and water them in the mornings so that they have enough water for the whole day.”

Trimming on a conveyor belt

“When after several months the harvest finally comes around, then I’m usually busy for at least a month gathering it off all my plants, and I spend two to four hours a day trimming. After a certain length of time trimming I get



This Durban Poison had a good life behind it, and that shows.



A Jackfizz at the end of August. Presently she will be hard at it making little white hairs, and it looks like there will be plenty of buds.



This plant of about four metres in height (in full earth) delivered an outstanding harvest in 1996.

a feeling that I could trim the rest of the buds without even looking at them, since I have already trimmed several hundred and the shape is pretty much the same. Most of the work I do myself, but my brothers also help out from time to time. I usually start by removing all the large leaves, quickly after this I run my scissors over the smaller leaves. The buds are hung up on fishing line and given a good four to six weeks to dry out, before I finally trim off the smallest leaves around the buds and remove them from their branches. The buds are then put in a dark cupboard laid on newspaper, which I check every day. Because even after the harvest there can still be some problems and your well-earned buds can be snatched away from you at this final hurdle.

The plants showed quite a bit of variety among them. From the small Black Domina clone that gave ten grams (thanks to letting it bloom too early), to the autumn harvest in which a Jackfizz after a full season in a 110 litre pot gave up to 400 grams a plant. Most plants yielded between 75 and 300 grams of excellent potency. Sweet outdoor ganja; classy smoke too. The biggest yield I ever had was around the 700 to 800 grams mark, and that could have been even more had not some of the buds been stolen. It was my first and biggest harvest from a plant grown in full earth. She reached a height of four metres. This was in 1996 when the weather had been outstanding with lots of sun right into mid-October. The plants had a lot of pleasure that year, as did I, and in retrospect even more during the harvest. 2002 was also a good year, maybe even the best I’ve had to date. Then I grew two Durban Poison plants that I had bought as clones. In a 50 to 65 litre pot they eventually yielded a combined 700 grams. In the same year two Amstel Gold clones gave me a little short of 600 grams. The taste and high were excellent and got given very good reviews from my mates.

To end, I’d like to say that if you ever get the chance, grow your own to guarantee your supply of smokables! Everyone can grow this plant. Buy or download a good growing guide and just go for it, with clones or seeds! Go one: just grow it if you’ve got the time...And greetings from Foppeland.”

Did you know that many growers make the mistake when they’re raising a K2 variety of harvesting it too early? Especially in the last weeks, this variety forces the blossoming enormously and the lady begins to make her buds develop explosively. These buds will be bone-white and good and fat!

'Scrog': growing with chicken wire

British grower Trichomes

By Bart B

In his series on growers from outside the Netherlands, Bart B. talks this time to Trichomes, an English grower. Trichomes tells all about his growing techniques and his vision of what cannabis growing is all about.



The chicken wire is hung 40 centimetres from the plants.



Thanks to the 'scrog' method, a 'screen of green'.



Make sure you have good ventilation and extraction.

"Ever since I was born I have been surrounded by cannabis. My father has always smoked. Which is fortunate, because he was a bit of an aggressive person and a nice fat spliff always calmed him down. So I had already established at a fairly young age that cannabis had great advantages for certain people. Whether this was down to stress reduction or lessening pain, I noticed that the green herb had many qualities. Logically then, I began smoking cannabis pretty early, together with my father and my brother. That was pretty cool. I once lived for a while quite close to the Spanish border, where the hash you got was always of good quality. Given that I was from England, where the hash was very poor quality, I really enjoyed those seven years living down by the Spanish border. During that time I got used to the high quality and learned to tell the difference between the good stuff and the garbage.

Jorge Cervantes

When I eventually got back to England it soon became obvious that if you wanted anything decent to smoke here then you had to have good contacts, or you had to be content with a bit of skunk. It is quite rare to get hold of any decent Moroccan hash. For at least ten years I have smoked a pretty good skunk variety in the UK, and just as in the Netherlands, growing cannabis indoors is the best way of ensuring a supply of good quality smoke. Our drizzly, rainy climate is not really suitable for outdoor growing. But if you really have nowhere you can grow then, you have no other option than to buy it, and the stuff is still quite expensive here.

The first growing method that I became familiar with was growing on water, or hydroponic growing as it's known. A friend of mine who back then was older than I am now gave me a book, 'The Marijuana Horticulture Bible' by Jorge Cervantes. I was about 15 years old and a heavy smoker. Growing cannabis had always appealed to me, and now I have succeeded in finally getting my own grow room together in which I can grow a reasonable quality of cannabis for myself. I've still only been growing a year, but enjoying picking it up. I'm just really going for it as best I can, to the maximum of my own capabilities.

Skywalker and White Russian

There are a lot of varieties of cannabis on the market. To date I have succeeded in raising from beginning to end some Skywalker and White Russian. Unfortunately, I started out growing from seed, and that held me back in my progress. It took a few months before I had enough clones to start growing seriously. The Skywalker is a very congenial, mellow smoke; the White Russian by contrast looks a hell of a lot better and is also a bit stronger in its effects. I will not be growing the Skywalker again, I reckon. In any case not for the time being. In the meantime I have had the good fortune of meeting a good friend on the 'overgrow' web site. He was so kind as to load me up with various clones of top varieties. Some of the varieties I'm busy with now include White Russian, White Widow, Jack Herrer, Jamaican Pearl, Armageddon, Critical Mass, Skunk 1, Durgamata and Blueberry. Variety is the spice of life, isn't it? These varieties will soon all be grown up and ready for testing.

Watering of the plants is by a 'drip-to-waste' system. I have a 200-litre reservoir that is used to give them water once a day.

'Sea of Green'

The grow system that I'm using at the moment is actually very simple. I use the 'scrog' method ('screen or sea of green'). The 'scrog' method consists of a piece of chicken wire fixed about 40 centimetres above the soil in your pots. You use this wire gauze to guide the plants where you want them to go. Of course, this requires a bit more work than other techniques, but the increased yield speaks for itself.

We do not allow the plants to grow through the gauze before they are covered with hundreds of potential buds. So we are going to repeatedly tie the side branches to the chicken wire gauze and train them into positions

where they can develop lovely buds. Once the gauze is about 80 percent filled, then the light cycle is switched over to 12 / 12, that is to say they are started in their bloom. This method allows you to create a thick leaf cover of mostly buds, and so get a large crop from a small number of plants.

Internet

I use a 'drip-to-waste' system for watering the plants. I have a 200 litre reservoir that is used to give them water once a day. All the plants are growing in 10-litre pots. I wanted to keep things simple in the beginning in order to first take the time to get to know the plants and to see how they grow and bloom, and then just draw on my experience. I really like the basic idea of 'aeroponics' because you avoid having a medium you have to haul about, and so you also have no rubbish problems. I reckon I will probably give it a go sometime in the future. Aeroponics is the art of raising plants by spraying the roots with a nutrient solution, using sprinklers for example. The roots of the plants hang in the air, and thanks to the huge amount of available oxygen they grow really fast. I have found a fantastic summary of how to build an aeroponic system for 150 plants. Simply brilliant, and it saves you a whole load of money if you do a bit of research yourself and then build a system yourself. In my opinion, the internet is the best place for information for growers. You can find everything you want or need to know.

Yields

With the 'scrog' method I managed to get 0.9 grams per watt. I recently managed with a slightly smaller space to grow more than 1 gram per watt. I don't grow in an especially large grow room; it's only about 3.5 m x 2.5 m. In here I've hung 3600 watts of lamps and an extra 600-watt that I use in an extra smaller space by the window. In total then, I use 4200 watts. And my last harvest was 3800 grams.

The time that I allow the plants to spend in their growth period is between two and three weeks. When I use clones though, it can take up to a month before they are nicely well rooted. I like to

get the clones quickly rooted so that I can begin again with a new planting immediately after the harvest. My last average yield per plant growing with a 'scrog' was 155 grams.

Since I began growing I have become intrigued by special bud-stimulators. I have now tried Dutch Master Superbud, but was not overly impressed. The quality of the cannabis was not so good and I don't particularly enjoy using chemicals. Another time, I used a new British product, called Triple F. It is made by Hydrotops, and is supposed to be 100 % organic. To be honest, I doubt whether good growers would really need these so-called budboosters. Although I have never conducted a side-by-side grow to determine whether or not these products really work or not.

In order to keep the odour problems down I have a large carbon filter attached to my ventilator. It is the most important piece of material in the space. Without a filter, there'd be no grow.

Experimentation

The nutrient that I am using at the moment is Canna's Coco A & B nutrient. I find this to be really good, but nevertheless I am thinking of switching over to a nutrient that consists of three parts, so that I have more control over the whole thing. I think that if you can determine the exact quantities that a plant needs during the whole cycle this can strongly influence the quality of your harvest. I don't think that I do anything especially different than any other growers. I just look at the growing techniques of other growers on the internet and compare all the good grows that I see there. Then I try to apply this information to my own growing practices. The growers are always very friendly and helpful in these online communities. And there are lot of people doing a lot of experimentation that they are willing to share, along with their knowledge and ideas.

Problems and harvesting

Up until now I have not had any really major problems during any of my growing attempts. The only problem is the heat that is given off by the lamp. To combat heat problems you need a reasonable extractor fan. As a rule-of-thumb, when you think you have sufficient ventilation, double it. I use a 1700 m3 extractor in a small space that makes sure that the temperature of the space is kept under control. I have stayed loyal to the same system that I started out with, and it is always getting better. I always try to find adjustments I can make that will make everything work even better and to help keep the climate even more firmly under control. Essentially, the more efficient everything operates, the less work you will have to do.



This is starting to look like it.

I have a single grow space and harvest all the plants at the same time. If I were to have more spaces then this would definitely delay the harvest, since as everyone is well aware, the trimming of the many plants would be a nightmare

Make sure first and foremost that you have a good digital pH- and ec-meter. Your plants will not be happy I they have to cope with too many swings.

thanks to all the work involved. The harvest comes around every three months. In actual fact I would like to see this cycle happen a bit quicker, but I am not prepared to go potting up more plants and so squeeze more grow cycles in. I'm attempting to grow a minimal number of plants and to get as much yield out of them as I can, and so far it's going nicely.

Beating the aroma

One other point is combating smells. In order to keep the odour problems down I have a large carbon filter attached to my ventilator. It is the most important piece of material in the space. Without a filter, there'd be no grow. It is pretty simple: without a carbon filter it would be just too risky. This year I warned

someone with just a few plants in a small cupboard who was not using a filter, and he didn't take my advice. One of the neighbours grassed him up to the police, and as a result, as you might expect, he is no longer growing.

As the harvest time approaches and the plants begin the last days of their lives, then I stop giving them water for the duration of these last few days. I allow the pots to dry out a bit before I harvest. As soon as the plants have been trimmed, they are hung up to dry. It takes around seven days before they become reasonably dry. After this what I do is pack the buds into a huge, 125 litre airtight tub to ripen for another week – actually, the longer the better. This really benefits the taste. Freshly harvested buds must always be given enough time to become cannabis. Thanks to a shortage of space I have to use the grow room as the drying room too. This is a bit of shame as the grow space can not be used for a further week as a result. Once the buds are well and truly dried, then in goes a new



Some 3600 watts of lamps.

consignment of clones to the grow room for the next round.

What tips do you have for other growers?

- 1 Make sure first and foremost that you have a good digital pH- and ec-meter. Your plants will not be happy if they have to cope with too many swings in the levels of nutrients they are given, so try and keep these values as stable as possible.
- 2 Prevention works, so always spray your plants with an insecticide, preferably an organic one - even if you do not see any insects. I always spray my plants twice during their life cycle. Once when they are still clones, and then later before they go into bloom they are sprayed again. I have never had any trouble from insects in my grow space, with the exception of the odd fly now and again.
- 3 Do not be afraid to experiment. Cannabis is a weed and very resistant to the stress we might give it. I do not advise you to stress the plant, but at the same time, do not be afraid to 'top' your plants so that they grow more in width. Normally I remove the top when the plants have reached their sixth

internode. The plants will become wider and bushier, which is a must when you are growing with a 'scrog'.

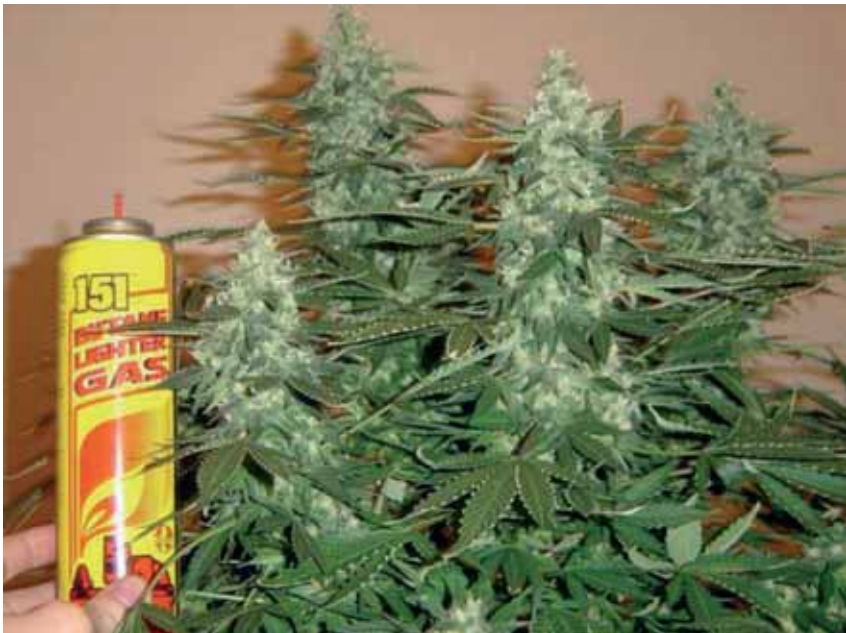
4 Always use a carbon filter or some other form of odour busting.

What are the laws like in your region and what do you think of them?

Cannabis is illegal in Great Britain, just as in the rest of the world. How can something like alcohol be legal and cannabis not? Everyone knows that alcohol is the real poison in society. I like to smoke because I am a relaxed person, not because I am a criminal or a fighter. I just want to be happy and content. Why do we have to break the law to do something that we enjoy and that does absolutely no-one any harm?

Any observations you would like to share with the readers?

I would like to thank everyone who has been prepared to risk their own security in order to help others. The growing community is the first one I have ever come across that was so ready to help, and so prepared to share the knowledge they had spent years accumulating. Don't be afraid: 'overgrow the world'.



The end result.



Drying in my grow space.



Landrace genetics with Zamalito

By lazystrain

Fashion has it that the majority of cannabis growers these days prefer to be growing varieties of cultivated cannabis indoors. Ultimately, these cultivated varieties descend from a small base of genetic stock – mostly skunk/haze varieties. The collection of landrace genetics is then restricted to just a handful of dedicated enthusiasts across the planet. Sowing and growing, then reaping and mowing, cannabis seeds from far-off lands, is their passion.

Zamalito is a cannabis-anthropologist and herbal-botanist. Rooted to the earth, his studies are mostly conducted in the field – alongside his plants. Very few people can actually claim to have grown as many pure landrace genetics – collected from all over the world. From the Congo to Kashmir, from Burma to Brazil, the tapestry of cannabis genetics is a vast subject. Soft Secrets UK then arranged a Q & A session with Zamalito to get back to basics.

Whereabouts in the world are you based?

Lately, I've been growing in the eastern Blue Ridge Mountains in the southeastern United States. I've found this area to be capable of producing some truly fantastic herb that in my opinion is far superior to any indoor product. Being different from Europe and the Pacific NW there are very few commercial genetics available that are capable of taking advantage of outdoor growing conditions here. That's the main reason I started getting into breeding landrace genetics. The weather, this year, has just been phenomenal. It's been an *El Nino* year which has eliminated the hurricane and tropical storm related rains that normally plague us in September/October. The flowers harvested so far have taken on a look that I've only seen from flowers cultivated in Hawaii – where after curing you see just a huge array of color. Many different shades of green, lots of amber and red pigments, it's just a stunning crop. I'm the most proud I've ever been. The pure *Zamals* have yet to finish but when you pack a large bowl of *Zamal x Parvati* this year's has

a strong sweet carrot overtone that I've been trying to get since growing the *Zamal*. It's always produced wonderful flavors but until now I never understood why locals on *La Reunion* describe their herb as having a mango/carrot flavor. It's a really nice feeling to know that I've grown a landrace to produce the qualities it has in its native environment.

When did you start growing cannabis?

At the time when I started and even still now there wasn't much quality available except for a locally grown fluffy road-kill skunk sativa that they called "*donkey dick*". You'd get 1 or 2 seeds in a quarter. Though I didn't have a clue what I was doing I grew some of these seeds in the woods near my parents house. Deer ate most of them, and I harvested the herb prematurely before drying it in the microwave. Quite a few years later a friend who was down on his luck had a hydro-farm 1kw halide and copies of *Ed Rosenthal's Handbook*

Georgia mid-grade. These turned out to grow into wonderful plants. About half were pure Afghans. The other-half were hybrids with some Colombian influence, and a grape taste. One plant had long narrow leaves. The serration's were very course, and resembled alligator tails. The stem was different also. It was a Thai! I'd grown my first landrace sativa.

Which method do you use?

For a number of years now I've had the outdoor growing bug. Since I mostly grow landrace sativa and do not live in the tropics I have to use a few tricks to cause the plants to mature more quickly. The first is that I start my plants very early either indoors or in a cold frame. If I start them indoors I run them under 24 hrs of light to make them more sensitive to darkness. I'm fortunate enough to have a growing situation that allows me to grow very large plants in full sun and still have them camouflaged into their surroundings. Full sun is crucial to getting the landrace herb to finish as fast as possible. Though I really love the

We need more breeders in the sweet spots where the environment produces amazing cannabis with little help from man. In Brazil we can maintain the African, Mexican and South American genetics without worrying about changing the lines to the degree that say an indoor or temperate latitude grower would

and *Mel Franks 'Growers Guide'* he was selling. I'd just gotten my tax return and took him up on the offer. He had been growing for a couple years and had obtained some *Shiva Skunk* seeds before Sensi stopped shipping to the States. He gave me a nice cutting, but for the most part the mad scientist in me was more interested in growing bag-seed. Once a year this sweet piney skunk from Oklahoma came to town. I hit the dealer up for seeds and this became the first staple strain I worked with. It produced a nice yield and purple pistils. Over the years I had collected a glass cigar tube filled with seeds partly from fresh skunky compressed North

concept of building the soil with some of the more extreme sativa strains. This year, I grew them in grow bags. With many varieties especially those from the very lowest latitudes the root binding helps trigger the plants to flower. The plants still root into ground out of the bottom of the bags, but that doesn't seem to lessen the advantages of using containers. I then cover the bags in a large ball of straw and lignin grasses. My theory is the lignin grass increases the presence of beneficial fungi in the soil, but also the high concentration of spores in the grass ball inoculates the plant. I fertilize with 5-year-old chicken manure. I'm also a huge fan of compost and teas.

What is your favourite type of plant to grow?

It's hard to pick a favorite. I've always been partial to the pacific *Mexican* landraces. The problem with the *Mexicans* (that I have!) is that they don't produce anywhere near as high a quality herb indoors as they do under sunlight. Naturally I love the *Zamal* and its hybrids. I like all landrace for the most part. What I like the least are the Dutch indica-types. It seems that almost all of the ability to produce accessory cannabinoids has been bred out of the modern indica gene pool. Which is odd since hashish traditionally has very high CBD levels. We must not forget that CBD is medicinal also and crucial to the buzz of the older hashish varieties.

Do you prefer landrace or cultivated genetics?

Since I've started growing almost solely outside there aren't many cultivated lines that are appropriate so I'd have to say landrace. I definitely understand the value of cultivated lines but the level of diversity with landrace genetics is so nice. I also believe that when more chemotype work is done we are going to find there isn't much difference between the heavily cultivated lines be it sativa or indica. Maybe there's something wrong with me but I don't notice a huge difference between a 75% sativa *Skunk #1*, a *Cinderella* and *Northern Lights*. Whereas, you can take *Kashmiri Resin Factory* and *Deep Chunk* (both 100% indica from central Asia) and they're worlds apart.

Please explain a little about the genetics in your collection?

My three staples that I love and could never lose are my *Zamals*, the *Ghanaian Accra Skunk*, and the heritage *Mexicans*. Currently I'm working with getting these *Congolese* and *Senegalese* seeds and the *wamm Malawi* (wo(mens) alliance for medical marijuana) reproduced. Recent acquisitions include - *Kona Gold*, *Columbian Punto Rojo*, *Brazilian Cabeça de Negro* (blackhead), *Angola Red*, *Columbian Black*, a few *Thais*, a *Sri Lankan*, some wonderful *Paraguayan* landrace, and a very old un-worked Vietnamese line. I also have a *Burma Jam* female that was the only plant that germinated from some 25-year-old seeds. At this moment my main breeding indica is the *Parvati*. It's as close to being a perfect pollen receiver for landrace hybrids I've seen. It has a huge variance of accessory cannabinoids, so when it is used in a landrace cross, the accessory cannabinoids of the female are usually carried to the f1. *Dr. Greenthumbs Kashmir*, *Pine Tar Kush*, and *Deep Chunk* are also being tested for breeding qualities. As you can imagine this is a lot of work. Thankfully my wife and best friend are into this as much as I am. Right now I'm looking into a new greenhouse facility and hopefully I can find something that fits.

How and why did you gather all these strains together?

The obvious answer is preservation and that is a large part of my motivation.

However, since reading Terrence McKenna's 'The Archaic Revival' I've been developing my appreciation for what indigenous cultures have to offer (?) Many of what I consider to be the finer things in life come from indigenous people - the finest cannabis, music, coffee, food and tobaccos. Being from the more "civilized" world we often consider the lives of those in the third world as hard, bleak and filled with suffering. I feel that the cannabis varieties that have been with a given culture for a substantial length of time tend to invoke the moods, attitudes, and philosophies of that culture in the user. *Jamaican, Ghanaian and Hawaiian* herb are great examples. The people of these cultures are laid back yet active, happy yet spiritual, and these paradoxes are certainly present in the herb. After growing and trailing my first landrace varieties I found that they had so many distinctive qualities. I was stunned to see that herb of incomparable quality has been in existence for thousands of years. In many instances it is nature that helps people lucky enough to live in certain sweet spots to breed some of the highest quality herb available. This is what motivates my collecting.

Has securing landrace genetics from across the globe become a hobby?

Yes, very much. If not a hobby, then a way of life! I've filled a kind of niche in my community where about 20% of the people who smoke what I produce are those that had long given up on cannabis because what's commercially available has no appeal. We have this product in the States from Canada, which is the blandest product one could imagine.

When and why did you start breeding your own seed lines?

When I first started breeding I didn't have a choice because I was growing from unlabeled bag-seed. I wanted to make more seeds many times, but I couldn't be certain what the males were. They could've come from somewhere totally different as another seed that was female in the same bag. It's just the nature of commercial bud. Needless to say my original breeding experiments were slow going. Eventually I tried Dutch genetics and they produced excellent bud - very different from what I'd grown before indoors. However, in my environment the indoor varieties would mold and the outdoor varieties would flower too small and too early. I knew from reading marijuana botany that breeding is best when done with stable varieties. Eventually through the travels of myself, my friends and family and searching through seed catalogs I'd gathered together an assortment of mostly tropical heirloom varieties, landraces, and ibls.

Which strain(s) do you prize most and why?

That's a hard one because there's a few strains that I couldn't live without that I could replace easily - then there's a few that I love slightly less that could



In my environment the indoor varieties would mold and the outdoor varieties would flower too small and too early. I knew from reading marijuana botany that breeding is best when done with stable varieties.



never be replaced. Right now the *Wamm Malawi* is very high on my list, simply due to the fact that its a Malawi inbred to finish in a temperate climate. It has it all - painkilling properties, anti anxiety, mood enhancement, and it is simultaneously energizing. The *Zamals* and *Zamal x Parvati* when grown properly make the highest quality herb possible. The *Ghanaian* is an all round fantastic herb that is one of my most

potent yet is incredibly natural strains. Ghana has a close relationship with some countries in the west that have a strong African influence like Guyana and Jamaica. It's a very natural earthy herb with strong Malawi and Congolese influences. Last but not least are my two favorite Mexicans - the *Acapulco Gold* and the *Oaxacan Pelo Rojo*. I believe the high of these two cannot be improved upon.

Which advice would you give to fellow breeders landrace genetics?

If you're a person who wishes to see a line preserved contact *Rahan* over at www.strainguide.overweed.net. The site is mostly in French, however Rahan speaks English also and there should be enough English on the site to find your way around. Another important aspect to remember is that genetics aren't static they're extremely dynamic and the environment must be replicated to that of the region of origin (or as close as possible). If this is not done you could be changing the line you're working with quite substantially. One way to combat this is to use the best seed storage techniques available to you and to breed as few generations as possible. When breeding the seed there's two aspects I try to consider. The first is the percentage of the gene pool preserved from generation to generation. This is accomplished by using a large population of plants. The second aspect is the frequency or occurrence of the genes (particularly the desirable genes). When I say desirable I don't necessarily mean potency, flavor, bag appeal etc. I'm mostly referring what makes the line unique. Since the female offspring tend to mostly resemble the ovum donor, I select one very desirable female for representation of each phenotype. Then pollinate with a larger amount of males - with a good level of hardiness and disease resistance being the main selection criteria. The most important part of preservation is to use any opportunity to return the landrace to the region of origin. At the very least try to distribute tropical varieties to the tropics if at all possible. Returning indica to an appropriate environment is tricky since north India and Afghanistan are difficult places to get to. Fortunately some parts of north India at least from what I hear Pakistan are quite welcoming and it seems quite possible to return some of these lines to their home.

What projects do you have planned for the future?

I'm working on bringing *Brazilian Seed Company* back. We need more breeders in the sweet spots where the environment produces amazing cannabis with little help from man. In Brazil we can maintain the African, Mexican and South American genetics without worrying about changing the lines to the degree that say an indoor or temperate latitude grower would. Luiz from *BSC* is a great guy. Together we have an unprecedented array of landrace genetics to make available to growers. We have about a dozen African strains spanning the whole continent, a dozen Brazilian strains, half dozen Colombians, a couple amazing thought to be extinct Hawaiian strains and many-many more. Unfortunately Luiz has become ill recently and had to sell his breeding facility to support his family. I'm working on getting him a new one and within a couple years we should have everything together. Anyone who has any questions regarding the status of *BSC* can contact me *Zamalito* on the international forums anytime.



Silver Calyx – Indoor Gardening in the UK

By Lazystain

Once upon a time, cannabis growing in the UK was a hobby restricted to the outdoor “gardening community”. Nowadays it is possible that almost anyone is capable of cultivating his or her own cannabis indoors. All said, it’s not always possible to draw a clear division between ‘cultivator’ and ‘gardener’, the line between is sometimes thin. Some of the best gardeners don’t cultivate, while some of the best cultivators’ sometimes garden. Soft Secrets then arranged to interview a gardener in the UK that chooses to cultivate cannabis indoors.

Silver Calyx is a dedicated enthusiast of cannabis culture from root to flower. He also likes to grow species suited to neutral rainwater, because he’s an ecologist at heart. Mind-you, mention the word “bubble-hash” and his ears stand to alert. Silver Calyx’s “mumble-crumble” has been known to,, well make people mumble, well into the early hours of the morning. To find out how he magic’s the hash from the plants he so obviously loves, we did a pen to paper and listened for a change rather than talked.

Silver Calyx: “I started growing cannabis plants as a teenager. My first experiments were with ‘Pet City’ hemp seed. I’d go down to the pet store, grab a handful of bird feed, pick out the cannabis seeds, and then plant them into some fresh soil. This is how I first learnt how to grow weed plants. At one stage me and my buddy had 100+ hemp-city seedlings growing under a bunk bed using fluorescent lights. One

of these seedlings, I remember, turned into a really nice plant, since we nurtured it like one of our own. At this point we only smoked hashish on bong so finding nice seeds to plant wasn’t always easy.

Then one-day I collected some bag-seed from some S. Indian weed that a local dealer was smoking. An Indian plant was raised in ‘Miracle Grow’ soil outside, and bought into a greenhouse at night for safekeeping, and to maintain temps. It grew so big that a relative had to chop the plant in half while I was on holiday, to keep it low-down. It grew taller than me in the end, and yielded about 2 oz by harvest. At this point I went out and bought the ‘Marijuana Grower’s Guide’ by Mel Franks. This helped me get used to different types of cannabis and instructed me on how best to grow plants in different places. I ended up swapping/loaning the book to another dude for a packet of ‘Misty’ seeds from Homegrown Fantaseeds. Then, one-day, I saw a flyer for a local hydro-shop. I visited the shop the same day and came home with an Aqua-farm grow pot, a 400w lamp system and a bottle of PK13/14. Into this system I placed one lone ‘Misty’ seedling and watched it grow.

My second grow and harvest had been a total success. So I went out and bought a GT205 NFT tray and started making cuttings from the remaining ‘Misty’ seedlings I’d grown. Then, one day while out walking, I noticed a petrol station was being demolished. On the forecourt lay several light units. I whistled over

a workman and asked him if him and his mates wanted some pints after work in exchange for the boxes they were removing. For £20 the bloke dropped 8x 400watt-ballast units (including bulbs) at my front door. Now I had enough light to start running some experiments. The glass fronts on the boxes meant that I could get them really close to the plants.

At this point I focused my gardening attention helping some old friends. They were growing a commercial crop of ‘Big Bud’ (in an amateur setting) at the time, using clay-pebbles/hydro-balls. During this whole episode I took a backseat in things. It worked out ok, but I was learning from someone else’s mistakes, rather my own.”

Mistakes

“You learn better when the mistakes you are making are yours. So long as you learn its all the same thing I suppose, but always try to apply what you are learning to your plants. This way you’ll always be learning something new all the way up to your’ last days of growing.

After a short period of dormancy, the opportunity became available for me to apply my own skills to my own plants in my own space once again. My passion for gardening never dwindled during this time, circumstance just meant that my own grow-project wasn’t possible. Soon enough I came across some ‘Haze#19’ seed and some ‘Jack Herer’ bag-seeds that seemed worth keeping. I started the next round of planting. The surviving Haze#19 plant turned out to be male in flower. But the Jack Herer where all female. So I made some clones from a mother I kept back. Since this I have experimented with different strains from different growers and breeders from seed and clone. If I find something I like the look of I make clones from it and save them for later. Off the top of my head the strains I can really remember doing well (the ones that stick out) include - ‘White Pearl’ and ‘Holland’s Hope’, two types of ‘Californian Orange’, ‘Grapefruit’ and ‘Heavy Duty Fruity’. These days as personal I really like smoking bubblehash on bong, so this is what I’m looking for mostly in my plants. Plants that produce lots of resin to make hash from are good. The strains I most enjoy smoking in bud form are ‘Blue Berries’ and ‘Strawberry Cough’.

Capacity doesn’t allow me to run too many strains at one time, so I usually hold 4-5 genetics in hand. Some come from seed I’ve grown myself and others are traded or bought in as clones. Learning to root my own clones from the original mothers or clones I’ve been given is a valuable part of my method, since I always want to be growing the best quality weed plants in my garden. I just got hold of a ‘Diesel’ clone that produces really nice long flowers. After smoking this strain in Amsterdam it went on the ‘to grow’ list. A friend of a friend sent the genetics to play with, so I gave it a try in one of my rooms. Another clone I’m trying just now is called ‘Blue Ice’, I’m told it came from a Welsh-Wizard (thanks).

I also like to keep carnivorous plants, not just weed. I pick them up at specialist fairs, from specific breeders (just like people do with weed seeds at cannabis fairs). These

plants are as challenging to propagate as cannabis. They need rainwater only to survive, and must not be fed any nutrients. I find these types of plants interesting to watch when I’m stoned and chilling. They catch all manner of insect and keep flies out of my greenhouse, which I sometimes use for veg with my weed.

Indoor Garden

My indoor garden maximises on space, which isn’t always an easy trick because cannabis plants like to grow so quickly. My bloom room is separated into two hubs. The main area uses 2.5 x 3 meters with access space. In this room too many plants often bask on x2 NFT trays under 2x600w (approx. 10plants per tray). The numbers tend to make most strains bloom into a dense canopy. Another tray usually houses another couple of plants in coco to one side. My smaller room is only 1.5 x 2.5m so things can get rather cramped. This space only has front access to water and tend to plants, so sometimes I have to be a contortionist also. In this space 12plants consume 1000w (600w on a light rail, and 400w static) in coco. My main extraction focuses on this room to reduce overall heat. All the walls in both rooms are covered in mylar to aid reflection.

Because my area is internal, a fresh air source is provided by an active 125mm intake-fan. This helps keep my temperature cooler. Each room has its own oscillating fan to maintain an ambient airflow and good circulation. Finally a large 200mm carbon-filter services a 200mm extractor, so that old air is fed outdoors afterwards. Without extraction my overall humidity levels would be too high, which could cause mold in buds.

For the last couple of cycles I have been using coco as my main medium in 10litre pots. Before this I used soils specifically designed for cannabis plants. I’d like to use bigger pots for bigger plants, but it’s all about managing my space and resources. I water by hand, which means I have to irrigate my crop using a 20litre Jerry-can. Watering by hand allows me to keep a close eye on nutrients, mixing a clean load each time. I use organic and chemical nutrients in combination.”

“If you’re using a substrate like coco then bacteria need to be able to live (just like they do in soil). For this reason chemical nutrients would be no good on their own; the benefits of using sterile foodstuffs are not maximised in cannabis growth. Bacteria fix nutrients onto the plant in a more natural symbiotic relationship than chemical applications alone. I hand feed for this reason since the values used would jam an automated system quickly. To be fair, my feeding regime has been changing for a while now as I test new products. I just find that the right combination, at the right times seem to work. At present I feed *House & Garden Coco A & B* and *H&G Top Booster* as basic. A splash of *Bio-Bizz Grow & Bloom* when needed, and a drop of *Super Thrive*. I also use *Voodoo Juice* and *Rhizotonic* early on at intervals, to promote nice thick healthy root systems. For enzymes, I like to use *Canna-zyyme*, since it breaks down dead matter, and I find it helps my plants. My EC levels are always checked and my pH adjusted to 6.1 to allow for increase feeding into

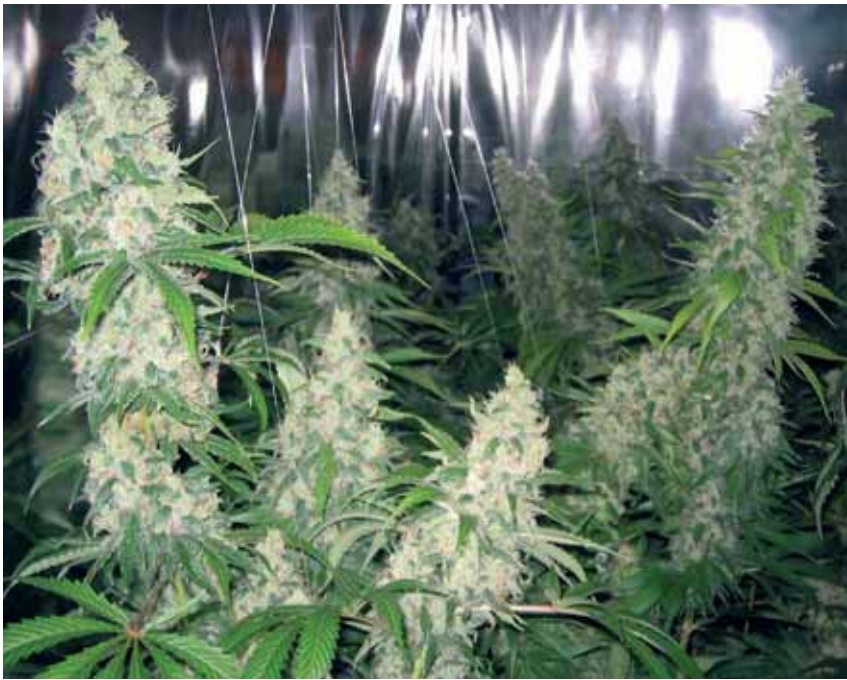
bloom. With this mixed feed program I can sometimes flush for up to 10days before harvest to cleanse the plants of any toxins.

Techniques

I borrow some of my supper-cropping technique from *Soma*. This involves me squeezing and crushing the fleshier top nodes to thicken them up and removing some of the lower wispy branches while in veg cycle. This allows for nice air circulation beneath the canopy. I like to think that plants suck-up energy as they grow, so all focus is placed into the main branches with the most potential for growth. Using this technique I find that the buds have better form and the plants generally grow bigger in bloom. Another trick that helped me to reduce my maximum temperature, (something I originally struggled with in summer) was to use a light-rail. This produces a more even amount of light in a confined area. When combined with yo-yos to hold down stray branches and a proper ventilation system I'm now possible to get a much more even canopy in the same space as before, and it produces thicker buds. I also like my gadgets like my EC truncheon and pH meter. More recently, I also decided to invest in a laser thermometer to gage specific temperature on individual flowers and leaf parts. Point the red-dot at something (shades/bulbs/soil/plant) press the button and it gives an exact reading. It allows me to then make alterations in my garden to try and get temps evened-out over the canopy of the plants.

Bubblehash

During the last year I've started to turn my trash into stash. After watching several downloads and videos, I went out and invested in the equipment needed, and oh my god what stash I've made so far!



Harvesting bubble-hash has become a bit of a ritual. All trim minus the fan-leaf and the stalks are placed onto a large clean plastic sheet in a dust-free environment when trimming. When dry, the trim waste is frozen and plenty of ice is prepared. I used a x2 sac system with an extra catching sac to produce two grades of hash. Fine and Ultra Fine. Once collected the hash is squeezed dry through the sac in a tea towel to extract extra moisture. Then the kif is placed onto card and chopped to fine sand. It's important to keep the bubblehash clean at all times. As it dries the appearance darkens and the natural smells develop. Left in this crumbly state, my personal stash I like to call "mumble crumble". If possible I cure this hash for 7days before use. I often smoke this exclusively on pipe in season, the rest of the time I smoke weed spliffs from my bud jars. The first sampling of the season is always an exciting event. My friends usually test smoke some buds and a cocktail spliff with the "mumble crumble" mixed in. Different types of strains produce a different type of mumble, in different people. *Heavy Duty Fruity* makes really nice bubblehash. If left to mature the buds are full of resin, which makes nice "mumble". Californian Orange plants make very nice bubblehash also with a unique high and smell not found in other plants. The *Californian Orange Bubble* we made from whole live/fresh plants, harvested early, was like fudge in consistency with a sweet orange oil scent. Until you've tried "bubbling" your own waste into hash you won't believe how valuable the throwaway leaf and buds can become. Like the rainwater I feed my flytraps, I suppose its about using something you'd think is waste. This is one reason why I now like to leave every plant to fully mature these days, to make better bubblehash. It allows for a much fuller flavour in the end product, which is always better for smoking.

COLUMN

Let's Hear It For Choice *By John Dee*

At this moment in time in the UK we're looking at the prospect of two major "reforms" to two particular domains of enjoyment and recreation. We're soon to have 24 hour licensing for alcohol consumption, and 24 hour gambling in the shape of super casinos (there *is* a cannabis-related point to all of this, so do please bear with me).

The reasons given for these are roughly as follows: it all boils down to consumer *choice*. People should be able to go for a nice quiet drink in a bar in the wee small hours if they so choose. This is bringing European-style drinking culture to the UK and it has to be a good thing as with restrictions lifted on when bars can and can't open, then there won't be any need for people to drink to excess, binge drink and so forth.

Similarly, the new casinos are also about consumer choice. People, so we're told, *want* to basically just hand over their hard earned money to multinationals, again, if they so choose. This is bringing Las Vegas-style gambling culture to the UK and this has to be a good thing because...well, the argument from this point on becomes a bit hazy, but that's getting away from the basic point of this.

So, the bottom line is that we're told that both of the above are a response to market demand and to some vague notion of consumer choice.

If we ignore the obvious contradictions and stumbling blocks, the arguments for making these reforms would actually carry some water. Unfortunately, I'm at a loss as to how 24 hour drinking and gambling in the UK can be reconciled with issues such as huge upsurges in problematic drinking patterns, booze-related antisocial behaviour, massive increases in personal debt, more people declaring themselves bankrupt, etc.

It's a peculiarity about governments and government agencies that they can get away with on the one hand producing and acting on evidence that supports action against pastimes they don't like (such as cannabis use) while at the same time ignoring or

dismissing evidence which may obstruct questionable 'reforms'.

So one of the principal justifications for 24/7 gambling and drinking (other than that they'll apparently bring with them lots of minimum-wage-slave jobs) is that 'they open up consumer choice'.

Any concerns regarding the (potentially massive) negative outcomes are dismissed with the argument that this too comes down to personal choice: nobody is forced to drink alcohol and nobody is forced to waste a weeks' salary looking for that lucky streak in the casino. *It's all about personal choice*.

And to a degree, this is true, but if it's true of drinking and gambling, it must also be true of cannabis use. Very few people are forced to do it; people do so because they choose to. And of course it's widely accepted that, while cannabis is far from the benign substance it used to be regarded as, the end results of 'chaotic dope use' are still a world away from the end results of chaotic drinking. One doesn't, for example, associate street brawls involving dozens of people and police with cannabis users.

Similarly, one doesn't usually associate betting on roulette wheels or whatever to the point of bankruptcy (and past that point, in many cases) with cannabis users either.

Let's be quite clear about this. In spite of all the excuses and justifications, these 'reforms' are being considered primarily as a way of filling the coffers of the Exchequer. And it can only be done with booze and gambling because they're legal and are therefore controllable from a fiscal point of view. It's all about the Government screwing people out of their money and lining the pockets of their big business cronies under the guise of choice.

If it's good enough for two potentially highly harmful pastimes, it's good enough for a less harmful one, so legalise cannabis. After all, as the Government says, *it's all about personal choice*.

dimethyltryptamine777@hotmail.com

'Scrog': growing with chicken wire

British grower Trichomes

By Bart B

In his series on growers from outside the Netherlands, Bart B. talks this time to Trichomes, an English grower. Trichomes tells all about his growing techniques and his vision of what cannabis growing is all about.



The chicken wire is hung 40 centimetres from the plants.



Thanks to the 'scrog' method, a 'screen of green'.



Make sure you have good ventilation and extraction.

"Ever since I was born I have been surrounded by cannabis. My father has always smoked. Which is fortunate, because he was a bit of an aggressive person and a nice fat spliff always calmed him down. So I had already established at a fairly young age that cannabis had great advantages for certain people. Whether this was down to stress reduction or lessening pain, I noticed that the green herb had many qualities. Logically then, I began smoking cannabis pretty early, together with my father and my brother. That was pretty cool. I once lived for a while quite close to the Spanish border, where the hash you got was always of good quality. Given that I was from England, where the hash was very poor quality, I really enjoyed those seven years living down by the Spanish border. During that time I got used to the high quality and learned to tell the difference between the good stuff and the garbage.

Jorge Cervantes

When I eventually got back to England it soon became obvious that if you wanted anything decent to smoke here then you had to have good contacts, or you had to be content with a bit of skunk. It is quite rare to get hold of any decent Moroccan hash. For at least ten years I have smoked a pretty good skunk variety in the UK, and just as in the Netherlands, growing cannabis indoors is the best way of ensuring a supply of good quality smoke. Our drizzly, rainy climate is not really suitable for outdoor growing. But if you really have nowhere you can grow then, you have no other option than to buy it, and the stuff is still quite expensive here.

The first growing method that I became familiar with was growing on water, or hydroponic growing as it's known. A friend of mine who back then was older than I am now gave me a book, 'The Marijuana Horticulture Bible' by Jorge Cervantes. I was about 15 years old and a heavy smoker. Growing cannabis had always appealed to me, and now I have succeeded in finally getting my own grow room together in which I can grow a reasonable quality of cannabis for myself. I've still only been growing a year, but enjoying picking it up. I'm just really going for it as best I can, to the maximum of my own capabilities.

Skywalker and White Russian

There are a lot of varieties of cannabis on the market. To date I have succeeded in raising from beginning to end some Skywalker and White Russian. Unfortunately, I started out growing from seed, and that held me back in my progress. It took a few months before I had enough clones to start growing seriously. The Skywalker is a very congenial, mellow smoke; the White Russian by contrast looks a hell of a lot better and is also a bit stronger in its effects. I will not be growing the Skywalker again, I reckon. In any case not for the time being. In the meantime I have had the good fortune of meeting a good friend on the 'overgrow' web site. He was so kind as to load me up with various clones of top varieties. Some of the varieties I'm busy with now include White Russian, White Widow, Jack Herrer, Jamaican Pearl, Armageddon, Critical Mass, Skunk 1, Durgamata and Blueberry. Variety is the spice of life, isn't it? These varieties will soon all be grown up and ready for testing.

Watering of the plants is by a 'drip-to-waste' system. I have a 200-litre reservoir that is used to give them water once a day.

'Sea of Green'

The grow system that I'm using at the moment is actually very simple. I use the 'scrog' method ('screen or sea of green'). The 'scrog' method consists of a piece of chicken wire fixed about 40 centimetres above the soil in your pots. You use this wire gauze to guide the plants where you want them to go. Of course, this requires a bit more work than other techniques, but the increased yield speaks for itself.

We do not allow the plants to grow through the gauze before they are covered with hundreds of potential buds. So we are going to repeatedly tie the side branches to the chicken wire gauze and train them into positions

where they can develop lovely buds. Once the gauze is about 80 percent filled, then the light cycle is switched over to 12 / 12, that is to say they are started in their bloom. This method allows you to create a thick leaf cover of mostly buds, and so get a large crop from a small number of plants.

Internet

I use a 'drip-to-waste' system for watering the plants. I have a 200 litre reservoir that is used to give them water once a day. All the plants are growing in 10-litre pots. I wanted to keep things simple in the beginning in order to first take the time to get to know the plants and to see how they grow and bloom, and then just draw on my experience. I really like the basic idea of 'aeroponics' because you avoid having a medium you have to haul about, and so you also have no rubbish problems. I reckon I will probably give it a go sometime in the future. Aeroponics is the art of raising plants by spraying the roots with a nutrient solution, using sprinklers for example. The roots of the plants hang in the air, and thanks to the huge amount of available oxygen they grow really fast. I have found a fantastic summary of how to build an aeroponic system for 150 plants. Simply brilliant, and it saves you a whole load of money if you do a bit of research yourself and then build a system yourself. In my opinion, the internet is the best place for information for growers. You can find everything you want or need to know.

Yields

With the 'scrog' method I managed to get 0.9 grams per watt. I recently managed with a slightly smaller space to grow more than 1 gram per watt. I don't grow in an especially large grow room; it's only about 3.5 m x 2.5 m. In here I've hung 3600 watts of lamps and an extra 600-watt that I use in an extra smaller space by the window. In total then, I use 4200 watts. And my last harvest was 3800 grams.

The time that I allow the plants to spend in their growth period is between two and three weeks. When I use clones though, it can take up to a month before they are nicely well rooted. I like to

get the clones quickly rooted so that I can begin again with a new planting immediately after the harvest. My last average yield per plant growing with a 'scrog' was 155 grams.

Since I began growing I have become intrigued by special bud-stimulators. I have now tried Dutch Master Superbud, but was not overly impressed. The quality of the cannabis was not so good and I don't particularly enjoy using chemicals. Another time, I used a new British product, called Triple F. It is made by Hydrotops, and is supposed to be 100 % organic. To be honest, I doubt whether good growers would really need these so-called budboosters. Although I have never conducted a side-by-side grow to determine whether or not these products really work or not.

In order to keep the odour problems down I have a large carbon filter attached to my ventilator. It is the most important piece of material in the space. Without a filter, there'd be no grow.

Experimentation

The nutrient that I am using at the moment is Canna's Coco A & B nutrient. I find this to be really good, but nevertheless I am thinking of switching over to a nutrient that consists of three parts, so that I have more control over the whole thing. I think that if you can determine the exact quantities that a plant needs during the whole cycle this can strongly influence the quality of your harvest. I don't think that I do anything especially different than any other growers. I just look at the growing techniques of other growers on the internet and compare all the good grows that I see there. Then I try to apply this information to my own growing practices. The growers are always very friendly and helpful in these online communities. And there are lot of people doing a lot of experimentation that they are willing to share, along with their knowledge and ideas.

Problems and harvesting

Up until now I have not had any really major problems during any of my growing attempts. The only problem is the heat that is given off by the lamp. To combat heat problems you need a reasonable extractor fan. As a rule-of-thumb, when you think you have sufficient ventilation, double it. I use a 1700 m3 extractor in a small space that makes sure that the temperature of the space is kept under control. I have stayed loyal to the same system that I started out with, and it is always getting better. I always try to find adjustments I can make that will make everything work even better and to help keep the climate even more firmly under control. Essentially, the more efficient everything operates, the less work you will have to do.



This is starting to look like it.

I have a single grow space and harvest all the plants at the same time. If I were to have more spaces then this would definitely delay the harvest, since as everyone is well aware, the trimming of the many plants would be a nightmare

Make sure first and foremost that you have a good digital pH- and ec-meter. Your plants will not be happy I they have to cope with too many swings.

thanks to all the work involved. The harvest comes around every three months. In actual fact I would like to see this cycle happen a bit quicker, but I am not prepared to go potting up more plants and so squeeze more grow cycles in. I'm attempting to grow a minimal number of plants and to get as much yield out of them as I can, and so far it's going nicely.

Beating the aroma

One other point is combating smells. In order to keep the odour problems down I have a large carbon filter attached to my ventilator. It is the most important piece of material in the space. Without a filter, there'd be no grow. It is pretty simple: without a carbon filter it would be just too risky. This year I warned

someone with just a few plants in a small cupboard who was not using a filter, and he didn't take my advice. One of the neighbours grassed him up to the police, and as a result, as you might expect, he is no longer growing.

As the harvest time approaches and the plants begin the last days of their lives, then I stop giving them water for the duration of these last few days. I allow the pots to dry out a bit before I harvest. As soon as the plants have been trimmed, they are hung up to dry. It takes around seven days before they become reasonably dry. After this what I do is pack the buds into a huge, 125 litre airtight tub to ripen for another week – actually, the longer the better. This really benefits the taste. Freshly harvested buds must always be given enough time to become cannabis. Thanks to a shortage of space I have to use the grow room as the drying room too. This is a bit of shame as the grow space can not be used for a further week as a result. Once the buds are well and truly dried, then in goes a new



Some 3600 watts of lamps.

consignment of clones to the grow room for the next round.

What tips do you have for other growers?

- 1 Make sure first and foremost that you have a good digital pH- and ec-meter. Your plants will not be happy if they have to cope with too many swings in the levels of nutrients they are given, so try and keep these values as stable as possible.
- 2 Prevention works, so always spray your plants with an insecticide, preferably an organic one - even if you do not see any insects. I always spray my plants twice during their life cycle. Once when they are still clones, and then later before they go into bloom they are sprayed again. I have never had any trouble from insects in my grow space, with the exception of the odd fly now and again.
- 3 Do not be afraid to experiment. Cannabis is a weed and very resistant to the stress we might give it. I do not advise you to stress the plant, but at the same time, do not be afraid to 'top' your plants so that they grow more in width. Normally I remove the top when the plants have reached their sixth

internode. The plants will become wider and bushier, which is a must when you are growing with a 'scrog'.

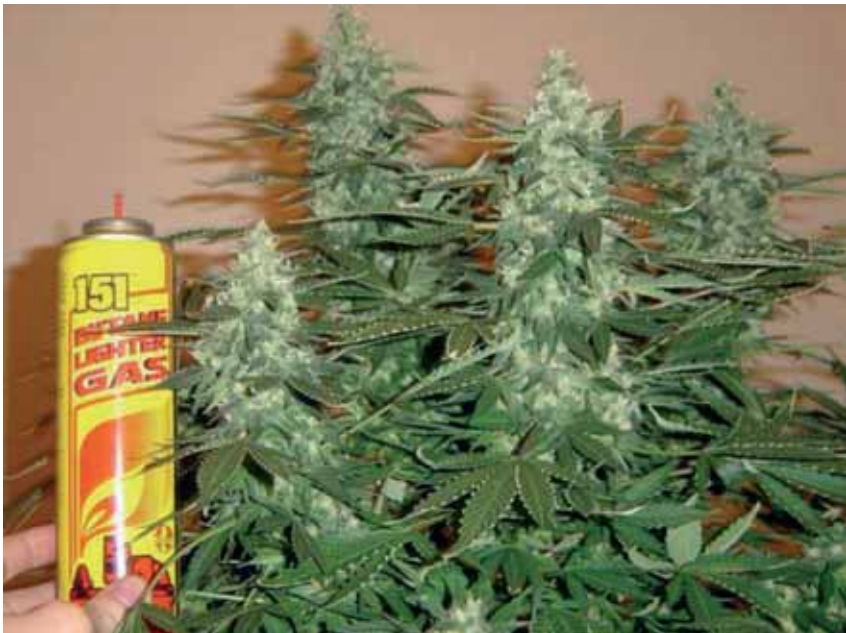
4 Always use a carbon filter or some other form of odour busting.

What are the laws like in your region and what do you think of them?

Cannabis is illegal in Great Britain, just as in the rest of the world. How can something like alcohol be legal and cannabis not? Everyone knows that alcohol is the real poison in society. I like to smoke because I am a relaxed person, not because I am a criminal or a fighter. I just want to be happy and content. Why do we have to break the law to do something that we enjoy and that does absolutely no-one any harm?

Any observations you would like to share with the readers?

I would like to thank everyone who has been prepared to risk their own security in order to help others. The growing community is the first one I have ever come across that was so ready to help, and so prepared to share the knowledge they had spent years accumulating. Don't be afraid: 'overgrow the world'.



The end result.



Drying in my grow space.

Strawberry Haze

The 2006 “sweet sativa” experience

After the 2005 High Times Cannabis Cup many started asking themselves what would be the new sativa flavour of the coming year. Many V.I.S. (Very Important Smokers) that were invited to take part in the first edition of the famous Green House Smoking Panel, back in June 2005, expressed a clear preference: sweet sativas with fruity backgrounds and a clear high. Amazingly enough, all who took part in the Green House Smoking Panel voted the same winner: Arjan’s Strawberry Haze. The video of this incredible event is available in the extras of the new “King of Cannabis” Part 3 DVD.

Arjan’s Strawberry Haze is a very unique sativa, with a particularly sweet smell and flavour, one that really reminds of sweet strawberries and summer fruits. The high is clear, very uplifting, with a very powerful mental effect followed by a laugh phase, a true “positive energiser” that leaves you with a sweet, fruity flavour in your mouth. The aftertaste reminds of the more complex sativa flavours, like the rest of the Arjan’s Haze family. It is a type of weed that complements social moments and lets everybody flow into a contagious happy mood. The plant is not a very easy-to-grow one, but it does not require more attention than your average sativa, and the flowering

time is in the 12 weeks range. The productivity of the Strawberry Haze is somehow limited by its long sativa bud-shape and by the long internodes, but the high quality of the strain guarantees high market prices and very satisfied growers. The THC content is very high (around 20%) and the CBD and CBN are very low, allowing the effect a more cerebral side.

At the Green House Seed Company we like to keep experimenting with our strains: we have tested the Strawberry Haze in soil and hydro system, with very good results in both situations. But the real question is: will our indoor results still hold against the outdoor trees that the Spanish growers will challenge us with? The outdoor season is about to begin in Spain, and after seeing the amazing buds presented at the Champions Cup last December in Madrid, we cannot wait to see what the results will be with this amazing new strain.

Arjan’s Strawberry Haze has long non-overlapping leaflets typical of a real sativa, and long internodes that give the plant a stretchy attitude (it can get really tall if not pruned or bent). The plant grows long branches that tend to stretch out of the plant profile reaching for the light, creating a very pine-like shaped plant.



The feeding solution for this sativa should not exceed the 1.8 EC, and the pH should be maintained at a 5-6_6.2 level, with a 6.0-6.2 range in the last 2-3 weeks of flowering. This will maximise potassium intake and the smoke will be sweeter and smoother. Also very important for the taste is the flushing of the feedings during the last 10 days of flowering, when just clean water should be applied to improve the taste of the final product.

Arjan created this new plant to give all sativa lovers the chance to grow a relatively fast sativa crop with a really new flavour. After the great feedback given by the V.I.S. in Holland it is time for the Spanish growers to try this great champion. The seeds are available in 10 and 5 unit packs, 100% guaranteed feminized and hermaphrodite-free! Visit www.greenhouseseeds.nl for a list of official Green House Seed Company dealers in your area.





Growing sativas in hydroponic systems, Green House style



At the Green House Seed Company we love sativas. The sativa strains of our seed bank are incredibly beautiful plants, tall and mighty, strong and well balanced in taste and effect. But as most growers know, sativas are more difficult plants to grow compared to indicas. They require more precision in the measurement and balancing of different elements, from the feedings to the air temperature and many others. For this reason growers who are accustomed to hydroponic systems are more likely to perform good at growing sativas; they are used to a very precise system, with strict control over all growth factors.

The Green House Seed Company uses many methods for growing hydroponics, but the most effective one up to now has been the simple open flush system with big 65 liters containers. We use rockwool flakes as a medium, the type that contains more air. This way we guarantee a well developed root system in a short time, as the roots can grow strong through the medium with extreme rapidity. Before using the rockwool to fill up the containers we soak it in a light solution at pH 5.5 and EC 1.0. This way the young plants will have no shock at the first contact with the medium.

Sativas like to start their growth cycle with a lower EC compared to indicas (1.2-1.4 maximum). Normally we grow on 18 hours for 7 to 14 days, depending on the strain and the target size of the plants. Plants like the Neville's Haze or the Arjan's Haze #2 are very tall and do not need much growth on 18 hours. Other strains, like the Arjan's Ultra Haze #2 or the Arjan's Strawberry Haze are naturally less stretchy and should be given some more growth time to achieve optimal development. The 18 hours feeding solution contains a higher N percentage than the P and K. We keep the pH at 5.5 during the whole 18 hours period.

The temperature of the air is kept between 23 and 25 degrees Celsius during daytime and around 18-20 degrees at night, a little lower than with indicas. Also the lamps are kept a bit more distant from the plants, at an average 70-80 cm. using 600 Watt systems.

As the 12 hours period begins we raise the pH of the feeding solution to 6.0, and then gradually up to 6.5 during the whole flowering process. This allows the plants to absorb better the P and K necessary to their flower development, and lowers the chlorophyll level inside the buds. During

flowering we raise the air temperature of a few degrees to increase resin production and speed up the metabolism of the plants. The air humidity is also monitored and kept between 40% during daytime and 65% during nighttime for the entire duration of the flowering cycle. Also the temperature of the medium is strictly kept between 18 and 24 degrees to ensure the ideal conditions for feeding intake and no stress to the root system.

During the flowering cycle we start flushing the medium once every 10 days using a light solution at pH 5.5 and EC 1.1-1.1. This process removes dangerous salts from the medium, preventing plant intoxication and allowing maximum growth and bud formation. Besides, we use a fungus controlling agent to avoid dangerous bacterias and moulds to attack the root system. This should be limited to 3 to 4 applications through the entire flowering period, and not in the last 3 weeks before harvest. This way no traces are left in the flowers.

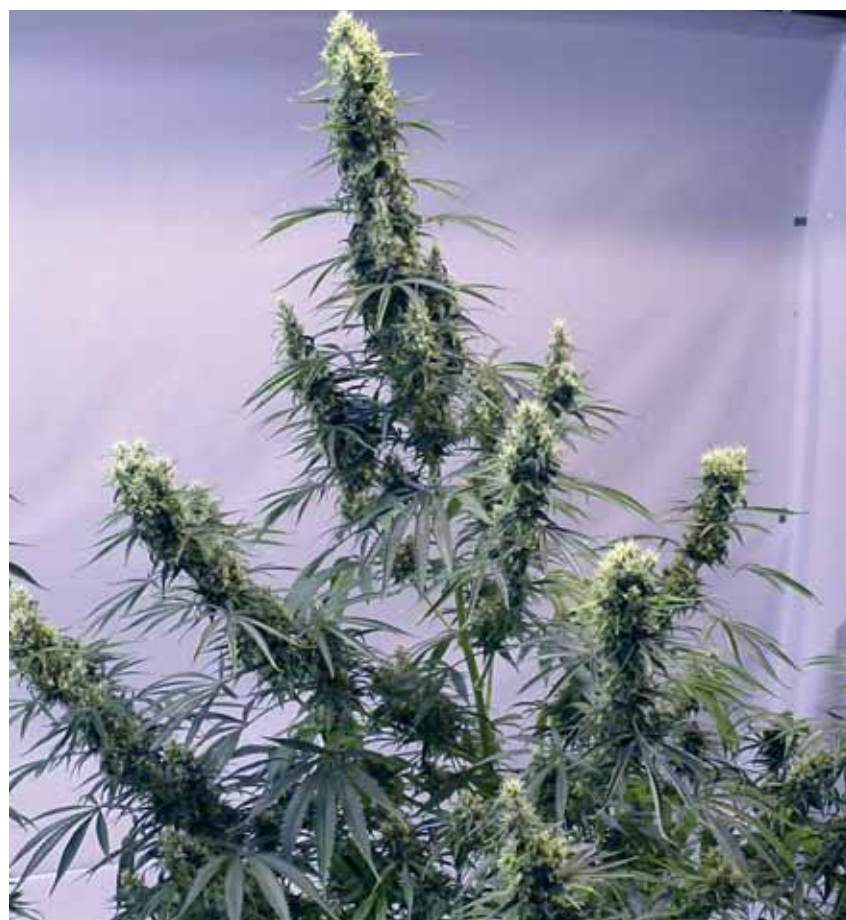
A very important element of our cycle is the drying of the rockwool. When the

plants start flowering, it is important to let the medium dry to a certain extent (50-60% water content) at least once a week before giving feeding solution. This increases the feeding intake and maximizes the flower production.

During the last 14 days of the flowering cycle we stop all feedings and wash the medium with a light flushing solution at pH 6.0, to eliminate the feeding residues from the plant, improving taste and effect.

Sativas have to flower for a longer time than indicas, therefore they need a healthy medium for a longer period of time. It is important to make sure the grow system is well maintained and well monitored, to give the plants the conditions they need to give 100% of their potential.

For more details on specific sativa strains of the Green House seed Company we invite you to download the Grow DVD from www.greenhouseseeds.nl. It is a free DVD containing all information on how to grow Green House strains, plant by plant, week by week, from clone to harvest.



Growing Indicas in hydroponic systems, Green House style

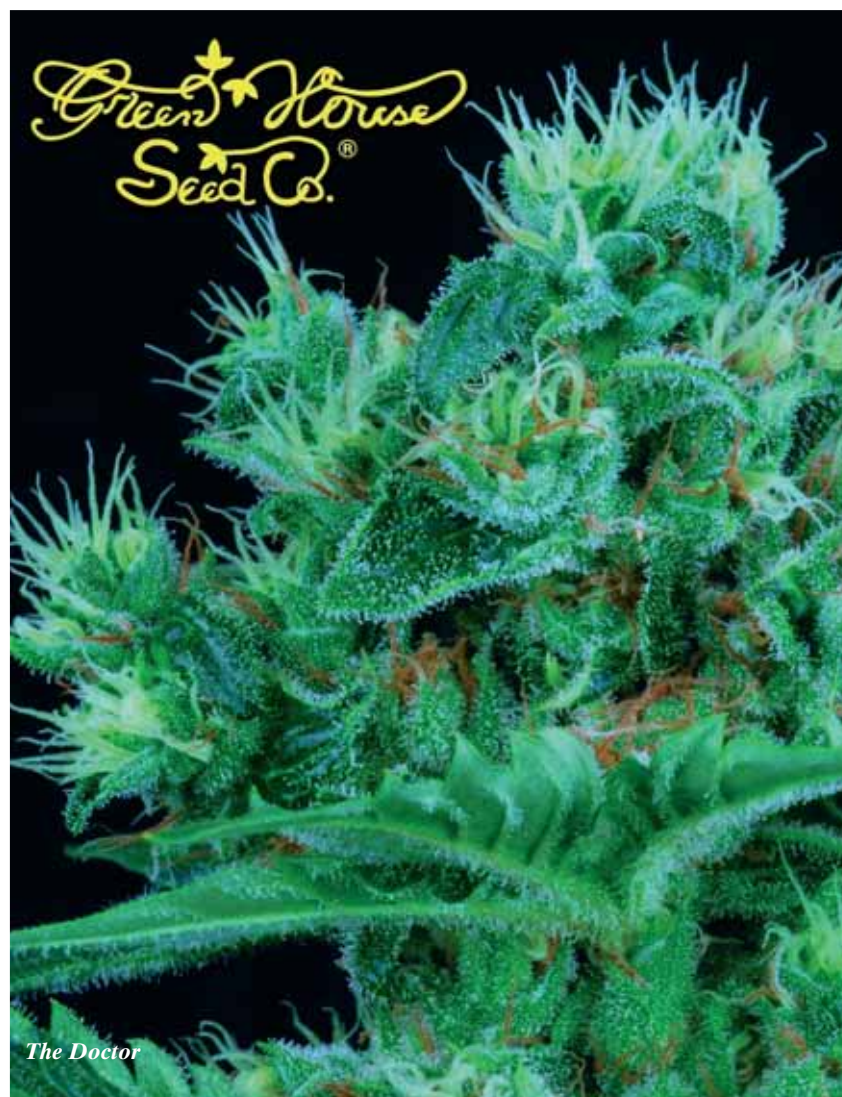
At the Green House Seed Company we love sativas, but we recognize the value of true indicas, with their great sweet taste, amazing production and short flowering time. The indica strains of our seed bank are incredibly strong plants, short and bushy, well balanced in taste and effect, with a strong stoned body-feeling. Indicas are easier to grow than sativas, allowing more concentration of feedings and resisting better to heat and cold. Any system is good to grow indicas, but they always give the most production in hydro systems. For this reason growers who are accustomed to hydroponic systems are more likely to perform good at growing indicas.

At the Green House Seed Company we use many methods for growing hydroponics, but the most effective one has been open flush system with big 65 liters containers. We use rockwool flakes as a medium, the type that contains more air. This way we guarantee a well developed root system in a short time, as the roots can grow through the medium with extreme rapidity. Before using the rockwool to fill up the containers we wash it with a light solution at pH 5.5 and EC 1.0. This way the young plants will have no shock at the first contact with the medium.

Indicas like to start their growth cycle with a higher EC compared to sativas (1.4-1.6). Normally we grow on 18 hours for 5 to 14 days, depending on the strain and the target size of the plants. Plants like the Great White Shark or the White Rhino are very bushy and need some good growth on 18 hours to reach the size for production. Other strains, like the Doctor or the White Widow are naturally more suitable for sea of green methods (SOG), with many plants on a square meter. The 18 hours feeding solution contains a higher N percentage than the P and K. We keep the pH at 5.5 during the whole 18 hours period.

The temperature of the air is kept between 25 and 27 degrees Celsius during daytime and around 18-20 degrees at night, a little higher than with sativas. Also the lamps are kept a bit closer to the plants, at an average 60 cm using 600 Watt systems.

As the 12 hours period begins we raise the pH of the feeding solution to 6.0, and then gradually up to 6.5 during the whole flowering process. This allows the plants to absorb better the P and K necessary to their flower development, and lowers the chlorophyll level inside



The Doctor

the buds. During flowering we raise the air temperature of a few degrees to increase resin production and speed up the metabolism of the plants. The air humidity is also strictly monitored and kept between 40 and 65% during the entire flowering cycle. Also the temperature of the medium is strictly monitored to ensure the ideal conditions for feeding intake and no stress.

During the flowering period we start flushing the medium once every 10 days using a light solution at pH 5.5 and EC 1.0-1.1. This process removes undesired salts from the medium, preventing plant intoxication and allowing maximum growth and bud formation. Besides, we use a fungus controlling agent to avoid dangerous bacterias and moulds to attack the root system.

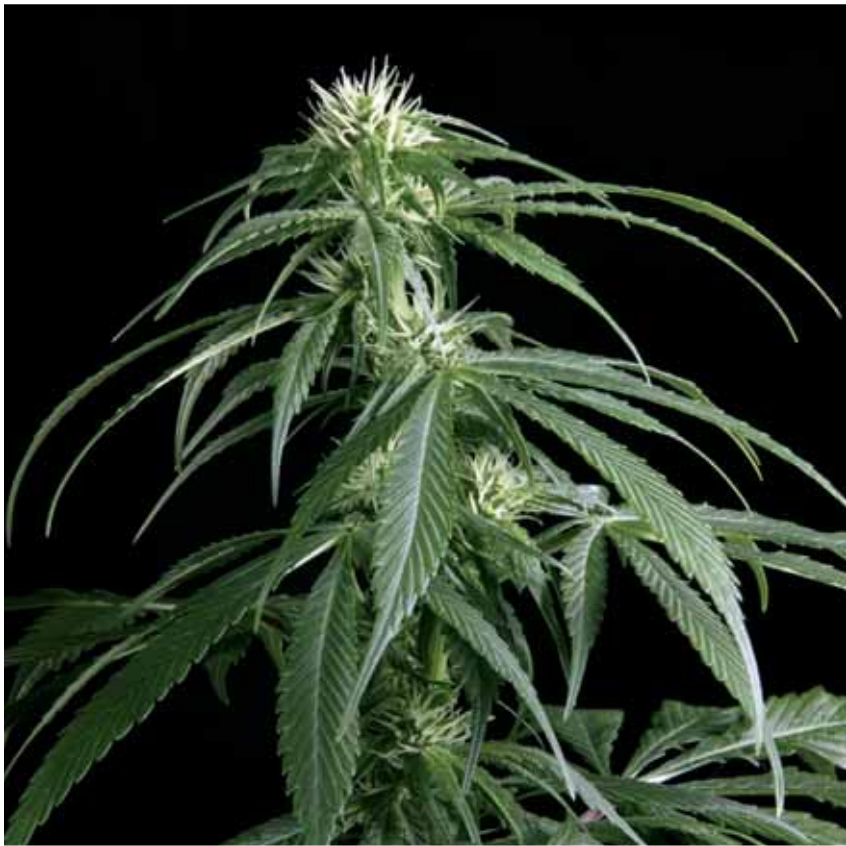
A very important element of our cycle is the drying of the rockwool. When the plants start flowering, it is important to let the medium dry to a certain extent (50-60% water content) at least once a week before giving feeding solution. This increases the feeding intake and maximizes the flower production.

During the last 14 days of the flowering cycle we stop all feedings and wash the medium with a light flushing solution at pH 6.0, to eliminate the feeding residues from the plant, improving taste and effect.

For more details on specific indica strains of the Green House Seed Company we invite you to download the Grow DVD from www.greenhouseseeds.nl. It is a free DVD containing all information on how to grow Green House strains, plant by plant, week by week, from cloned to harvest!

A reasonably good substance with which to counter infestations of spint and green- or black fly, is a soap-methylated spirit mixture. Dissolve 20 grams of green soap and ten grams of methylated spirit in 1 litre of lukewarm water and then give the plants a thorough spraying; this will often do the job nicely. Make sure that you spray the underside as well as the top of the leaves. If we repeat this application a few times (with a break of ten days between each application) the results will be clearly noticeable.





Arjan's Ultra Haze #1

The 2006 Cannabis Cup ultimate crop

Preparing a Cannabis Cup crop is no ordinary task at the Green House. It is the most important crop of the whole year, the one that requires the best resources and the most passion and commitment. Perfect quality is the ultimate goal. Back in December 2005, in the aftermaths of the previous Cannabis Cup, Arjan started consulting his managers to decide the strain for the 2006 event. The process requires a few months of thinking and talking, with careful evaluation of the taste and trends in the market. By February 2006 a decision was made: Arjan's Ultra Haze #1 will be the Green House entry for the 2006 High Times Cannabis Cup, the most important cannabis competition on the planet.

Arjan's Ultra Haze #1 is a mighty sativa with a very woody-hazy smell and a full forest-musky flavor, a true clean uplifting psychedelic high and a well balanced body effect. The plant

flowers for 12 and up to 13 weeks, and it requires a certain development for exploiting the full potential of production. The genetics come from Neville's Haze crossed with Cambodian and Laos, a true sativa wild breed. It is a strain that balances the characteristics of a true sativa with the exciting fresh flavor of a new cross.

In March 2006 the clones for the Cannabis Cup crop were cut from the original mother plants, rooted in rockwool cubes under TL lights (18 hours of light), and then planted in small pots with a very special soil mix, rich in turf, fibers and micro-elements. The plants were grown in the small pots for a week before being transplanted into 20 liters containers and moved into the 2 identical adjacent growrooms especially prepared for them. The growrooms were fitted with a special climate control unit, to maintain ideal conditions at all times.

Each of the two growrooms had 6 lamps of 1000 watt, for a total of 12000 watt. The walls were fitted with special rolls of black cloth to be used when filming or shooting.

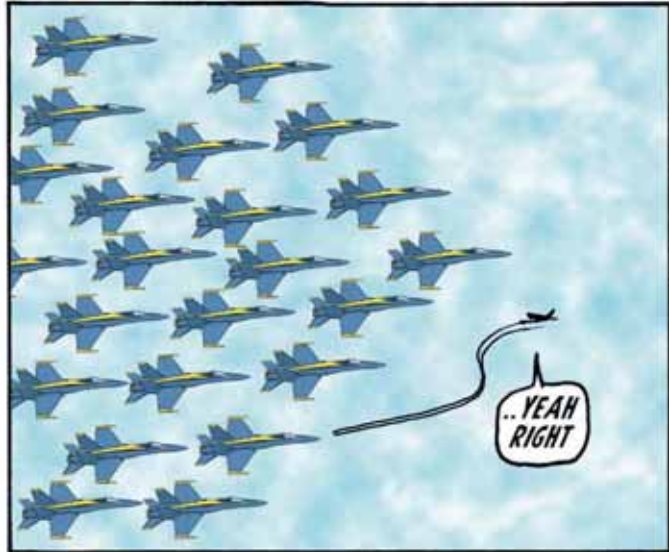
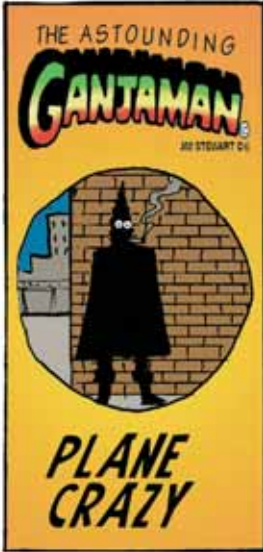
For the first time in history, a cannabis cup crop was going to be filmed and broadcasted online during its production. Another Green House treat for the High Times Judges waiting for the next cup! Between April and July the plants were filmed weekly, and the whole experience has been visible on the websites www.myspace.com/greenhousesseeds and www.myspace.com/green_house

During the first weeks of vegetative growth the plants were given a feeding solution with a pH of 5.7-5.8, and an EC of 1.6-1.7. Temperature was kept at 26 degrees Celsius during the day and at 18 degrees at night.

During flowering the pH was raised to 6.2-6.4 and the EC to 1.8-2.0, before the final flushing to clean up the traces of fertilizer from the metabolism of the plants. The cannabis cup crop has to be the sweetest and most potent of all, but strictly organic!

When every THC gland was finally ripe, the plants were harvested and dried in a controlled environment, very slowly. The drying process took over 3 weeks, then the plants were cured for an extra 2 months in closed containers. After curing the buds were manicured and packed for storage and final curing .

The best of the best, for the judges of the 2006 High Times Cannabis Cup!



Quality vs. Quantity

By Joe Kane

If you're ever lucky enough to come across some of these sticky beauties you'll know somebody's gone to a lot of hassle to assure you get some really top quality. They're known as 'Caramelos,' from the Spanish word for 'sweets,' and sometimes also called 'Huevos' – 'eggs'.



The unmistakable shine of high-grade hashish.



A slab of mass-produced inferior quality hashish, known to us in the UK as pollen

Before one buys it, the resin is totally unpressed, a golden glistening powder, which can immediately be tested and graded by the customer.

The loose powder is very sticky and easily pressed together in the palm of a hand.

Typically, they're 5 grams of finest sieved Moroccan hashish. It's impossible to find inferior quality Caramelos for the simple reason that whoever creates these eggs is a true Cannabis Lover/Believer and has travelled round-trip from the UK to Morocco on a quest.

Before you purchase, the pure resin is totally unpressed, a golden glistening powder which can instantly be tested and graded by the purchaser. The loose powder is very sticky and easily pressed together in the palm of a hand. As a further test, you can put a flame to it and immediately press your thumb on it. As the delicate ripe resin glands burst from the pressure, the gold dust will darken, and you should be able to see your thumb print on it. As a final test, put a flame to it again and notice if it starts bubbling – that's high grade.

Once the customer's satisfied himself as to quality, and agreed a price, it's wrapped into egg shapes according to the size the customer wants. These eggs are pressed by hand and wrapped with cling film, three, five or even ten grams like these pictured here.

They're then swallowed - hidden! The magician must still pass through all customs and international borders like a cool summers' breeze. For small-time smugglers, this remains a safer transportation method than suitcase or car.

The pieces of Caramelo are pressed further by muscles and the heat inside the body as they fellow-travel along! Perhaps this body press is what gives them this amazing shine? Certainly, if slabs of high grade pollen are pressed under a five ton jack press for six months, they'll also eventually shine like Caramelos!

So how does it work? I suppose profit margins explain a lot of the motivation, but quality remains of paramount importance. High-grade cannabis resins are extremely rare in the UK, especially since the Nederweed influx of indoor cultivation.

Shit Commercial Hash

Of course it's a healthier option than the dirty soap bars and adulterated pollens that keep coming into this country on a mass scale. Lucky potheads out there might stumble across amazing grades of resins, only to find their availability very limited. These lucky luxuries have most probably arrived here through some hash aficionado (literally) who's turned small-time smuggler, with the emphasis being on small-time. The amounts rarely exceed a thousand grams, and most is usually kept for personal consumption - tiny when compared to the lorry and boat loads continually bringing in tons of dodgy hash.

Shit-hash being brought into the UK is a very distressing fact, and quite simply the

These lucky luxuries have most probably found their way in here through some hash aficionado (literally) who has turned small-time smuggler with the emphasis being on small-time

people doing it are bastards! The government's even more responsible. Which brings us back to the old argument of decriminalisation vs. coffee shops, and the fact that coffee shops can only survive on quality based ethics. In other words, the crap soap bar will no longer be able to hold its place in the free market, and high grades of hash and charas as well as skuff will be allowed to take their place.

The common view on hash in the UK is that it's thoroughly dirty, and there's little to say that will change people's minds. You can't expect someone to believe in something they've never seen before. More pollen is currently available, but quality is unstable. Just because someone says its pollen doesn't mean it's pollen! It can still be full of nasty adulterants. Compared to a Caramelo, a pressed slab of commercial grade pollen hardly bubbles or stays alight. This is evidence of minimal oils, along with a slight brown colour (adulterants) in the smoke. The smoke should be a lovely misty blue colour. There isn't a lot of difference in the price, but the quality will make you feel like you've just had the best orgasm ever and leave a satisfied smirk on your face.

In a place like the Rif Mountains of Morocco, people are proud of their product. Once again it's about going to the source. This trip has to be a must for every serious hash smoker. Although you can get extremely stoned at home, you cannot fully appreciate the higher states of high even from smoking a piece of Caramelo in your front room. Imagine, instead, being on a kif farm somewhere in the high regions of the Rif. Imagine sieving your own hash by hand, pressing it and then smoking it. Fantastic or what? These are either spiritual moments in

one's life or else you could just say it's a real fresh hit of THC that you've never experienced before.

Unlike quality pollen, which contains almost pure, rich ripe THC glands, many mass-produced pressed pollen blocks contain Nescafé, candle wax, crushed up pills for mental health problems, and the most magical binder – tree sap. Let's not even start on the soap bars and car tyres.

I hope this article is perceived in the right light. By no means am I suggesting that you should go and fetch some back for yourself, quite the opposite! DON'T do it, even though it might look very tempting. When you're leaving a foreign country that has top quality hash, they usually have strict rules and severe penalties. Never leave such a country in possession of even a small bit, no matter how good it is! If you're not convinced, re-read Willem's underworld-story, in Soft Secrets nr. 3.

All we can do is put our collective support in the right places and try to push the boundaries further until it's possible for a cannabis free-market to exist. Until then the ever-changing ruling political parties are happy for their law-abiding citizens to smoke unhealthy cannabis resins whilst retaining archaic legislation.

Hash smokers are a hazard only to themselves, and we don't want to hurt anyone. We should also be allowed the right to make our own informed decisions. A change in the law might just mean that we could get better quality and it might also stop naive potheads from ending up in jails all over the world.

Love from Baba



These lucky luxuries have most probably found their way in here through some hash aficionado (literally) who has turned small-time smuggler with the emphasis being on small-time

UK Cannabis Breeder

Anyone that keeps a close eye over developments in cannabis cultivation will have noticed a sharp increase in the number of seed breeders and seed dealers now operating in the UK. The vast selection of commercial strains now available runs into the thousands, with each individual breeder aiming to produce his or her own unique strains of cannabis. People breed cannabis for many different reasons. Some people breed cannabis for fun. Others to enhance botanical knowledge. Certain people breed cannabis for medicinal purposes. Whilst other people breed cannabis for profit. Many people breed cannabis for several of the reasons above- such is their prerogative.

By Lazystain

In wanting to know a little bit more about becoming a cannabis breeder, we thought we'd interview the owner of a relatively new seed company. So SSUK decided to arrange a Question & Answer session with a breeder called Growdoc. From the Matanuska Valley Alaska to present day Holland, Growdoc conducts his research across the Four Corners of the Earth. Growdoc Seeds is a young company with wholesome ambitions. As the breeder of both recreational and medicinal strains of cannabis, Growdoc was happy to provide the readers of SSUK with some inside advice about becoming a cannabis breeder.

Basic breeding

In simple terms, breeding cannabis involves the transfer of male pollen grains onto female flowers. Following pollination seeds take several weeks to mature. Cannabis plants may be in-bred or out-bred to create separate varieties. Once in-bred over successive generations, varieties of cannabis may become homogenized (uniformed/stable). Out-bred varieties, upon the other hand, often display vigor and instability as hybrids.

Growdoc suggests that:

"Breeding from seed or clone is a contributing factor in the determining of traits and characteristics represented by a single species. Good seed stock should be made from good seed, not a bunch of clones. In-breeding should only be used in extreme situations to isolate a trait, and even then it takes at least 7 generations to bring it back around. Unfortunately in-bred strains are showing up more and more on the commercial market, often being passed on as 'good seed stock'. Feminized seed have this very problem; the strains just do not have the genetic backing they should, and this causes many weaknesses in the plant."

Q&A with Growdoc

When did Growdoc first start breeding cannabis?

I did not actually start breeding my own strains of cannabis until 5 years ago when I made my first cross. I started



researching cannabis when I was 15 (started growing at 13), but by the time I was 18 it was the only thing I really wanted to do, so I moved into Europe from Alaska. I did this to be closer to Holland and find out as much as I could about the cannabis breeding industry. I would save up any money I had and

In the early days did you ever think you'd open your own seed company?

I never thought that I would become a breeder let alone open a seed company. When I first entered into the breeding scene I was very fast to open my mouth. The challenge was thrown right

In-breeding is perhaps one of the most frustrating problems we face as cannabis breeders because too many breeders out there are using in-breeding as a way to create seed for sale

then go to Amsterdam and take in as much info I could... and hopefully make a contact in the grow world.

What was the motivation behind your first breeding project?

After all the research and years of picking out good strains to clone and smoke, I wanted to give breeding a try. Cannabis is a huge part of my life, so breeding became a natural stage of development for me. During my first breeding project I created Bubble Dust (a.k.a. Brain Damage). I did this for one simple reason- to create a medicinal strain that can help to ease the pain of a sick family member.

back at me. People were asking me if I could do any better? So, I started to make my own strains based upon the knowledge that I had collected over the years. Once people started hearing that I had seed stocks, the offers started coming in, and Growdoc Seeds was born.

Why breed cannabis seeds? Why not strawberries or tulips?

Funny you ask, because I do breed strawberries also. I have a very nice breed that I have made myself, its half Dutch and half Norwegian; I call it 'Sweetie'. Nowadays I have pulled most of my strawberries and just kept three plants growing, (so I don't lose the strain). I also make room for my roses, which I have been breeding for some years now. I also breed cats- Abyssinian's.

Where did you pick up all the background knowledge about cannabis genetics?

I grew up in the Matanuska Valley, Alaska. We are world renowned

cannabis growers and don't play with dirt weed. Since then, I have worked for a wholesale seed bank producing feminized seeds and for a small seed bank that breeds out seed strains for medical users. All round I have about 5 years experience breeding out cannabis and 15 years growing experience. I have used most of my growing life to study and learn about cannabis plants and their macro/micro environment. This background knowledge helps me to understand what is really going on with the plant.

What asset(s) is most important to you as a breeder?

Several things: 1) Seeds. Having access to good fresh seed stocks is the most important asset for any breeder. I've always worked with clean strains (I mean straight genetics, no hermaphrodites). I have been ripped off for all my seeds before now... it's like someone chopped my nuts off. You may talk all you like, but if you have no seeds you're not a breeder! So seeds are most important. 2) Travel. Being able to travel around the world and see local indoor strains and land race strains being grown in their natural environment really helps. I will travel over an ocean to get some good seed stock. For me this is the only way I know I can continue in the future. 3) Info. The honest and proper recording of all information is very important to me. So much is lost when all the lies and bullshit take over the facts, so I like to keep records of everything. This is most important as a breeder.

Do you research other seed companies?

I always research as much information about other seed companies as possible - from gossip to factual activity. It's hard to keep up with all the new seedbanks opening, but I do my best to meet and greet them all whenever I can. Working for 3 years with one of the largest seed wholesalers in Holland (making feminized seed) and co-owning a small seed bank in Flevoland (selling seeds to local and international growers) has helped. These projects involved lots and lots of research. These days, at Growdoc Seeds we like to keep in close contact with many other breeders. Chatting and having sit-down talks about old and new things can be very important. It really helps to keep things updated and well informed.

Is the cannabis industry easy or difficult to get into?

I started off in south central Alaska, but moved to Europe when I turned 18 so as to get closer to the cannabis scene. We would travel to Holland 5 times a year from Norway. During these trips I'd visit whatever seedbanks or growshops I could, trying to learn about everything. Traveling half way around the world to learn about something that used to be legal in my hometown seemed strange. But by moving to Holland itself, I was able to gain better access to the cannabis industry. This has allowed me to open many doors. Meeting the right people and asking

Did you know that Jack Herer is the result of many long and intensive years of breeding? This multiple-crossing combines three of the world's strongest varieties. The plant produces so much resin, that even the twigs are covered in it! Some knowledgeable types compare the recipe of the Jack Herer cross with that of Coca Cola! The bloom time is about 50 to 70 days.

the right questions was the difficult step; but humans have an individual way of stepping up to a challenge. This makes it possible for us to do anything without even thinking about it...easy or difficult, it's all relative.

I imagine living in the Netherlands holds certain advantages...

Holland is the in and out port of Europe. This makes it an easy place to collect information about growing. I am able to keep an eye on the grow-world and keep myself up-to-date on new and exciting products. It also makes travel cheap and simple around Europe. In the least, Holland has its hands in agriculture, world wide... this makes Holland the center of western cultivation.

What about the Coppers and the Law?

The EU is pretty relaxed when it comes to seeds. In some of the newer EU countries customs do seize seed packs, but not many seizures are followed up. It's all about playing it right and not stepping on too many toes. Paying your

I have seen so many commercial strains die out after a very short time, they get cloned so much and in the end the breeder tries to make some seed with a clone, and this is where things start to go wrong.

tax and staying away from bad shit is important. The local Dutch police have visited my house before now (my landlord rattled me out). They came into my home, looked about a 1x600HPS garden and left my house saying "sorry to bother you".

What about expenses, is starting up a breeding operation expensive?

Breeding doesn't take any extra cost than a normal grow. The cost really depends on how fancy you keep your garden. For example, an indoor garden must have good lighting and ventilation (fans/blowers/sucker) and filters- all of which costs money to keep running. Whereas a greenhouse can give a completely control area with free light and free ventilation if used correctly. So it's a case of suiting your own needs.

Security is what really costs me most. Having to move around and never stay in one house to long can make things very stressful and expensive. Starting up does not cost much at all. There isn't that much expensive gear that is required, but we all like our garden toys. Ultimately any costs fall onto the breeder, so I try to keep things simple.

What do you look for when choosing genetic stock?

This depends on what is trying to be achieved. With recreational strains taste, smell, outlook, high, size and shape are some of the factors that must be taken into consideration. I go for one factor at a time, lessening the chance for outside factors to contaminate my control area. Once I determine the factor that I am after, I find the best

Did you know that it's a great pity to let the leaf trim (the small, sticking out leaves around the bud) just be thrown away? Often there is a some really good quality hash to be made from it or even bake a space cake out of it, once you've let the little leaf fragments dry out properly.

strain I can, then find out who the breeder is and go visit them person to person and let them know what I am doing. The strain is then either bought in or traded for directly from the breeder. Then we use them in the agreed way.

Do you start with a clear aim of what you intend to achieve?

With medicinal strains I definitely have a very clear mind of what I'm trying to achieve. My mother is very ill, so I am trying to make her comfortable, this is what I am focusing on right now... her liver is shot and she can't take heavy medication anymore. So I am out to make strains that will help her and other medicinal patients feel

like humans, if not only for a few moments/hours... For example, Angel Dust (the father of Bubble Dust) is the best medicinal strain in our collection. It's used for all kinds of ailments. Recent studies have shown that Angel Dust helps to ease pain and promote appetite in Lupus and Cancer patients, while calming the nerves of people with Gilles de la Tourette syndrome. It is these medicinal qualities that we are looking to preserve.

What things have helped you most as a breeder?

Going to lots of different countries and seeing all kinds of strains being grown in all kinds of conditions. Watching cannabis evolve in natural and unnatural environments. Meeting other breeders and growers with a huge exchange of information between us all. Thanks to all the home growers out there we now have an abundant number of cups, conventions and trade fairs. These are some of the best places to be able to find information and sit down with other breeders for a chat. You can get your seeds straight from the breeder's hand and look into his/her eyes at the same time. Huge conventions like the Highlife convention (Utrecht, Holland & Barcelona, Spain) are among the biggest in the world and should be seen by all growers that are serious about the industry. The industry is now expanding into many smaller cups, so private cups are popping up all over Europe. Norway had its first cannabis cup in 2003. Spain has at least 5 different private cups each year. Switzerland has a minimum of 3 small cups. And Holland has so many cups that no one

can count how many. On a world basis conventions and cups are popping up everywhere, so it's very hard to keep track with everything. The industry is now growing in so many directions.

As a breeder what major problems have you encountered?

The biggest problem for me is the serious lack of original genetics and the exploitation of single strains these days. Like all commercial cropping (for all foods worldwide) original seeds are not taken into high consideration when breeding is conceived. Clones are being used to make seed, which can cause all sorts of long term problems like genetic weakness and mutation. In-breeding is perhaps one of the most frustrating problems we face as cannabis breeders because too many breeders out there are using in-breeding as a way to create seed for sale. Theft can also be a problem! Thieves come in all shapes and sizes and can steal from people in many different ways. I have watched another breeder take my seeds right in front of me, then turn around and sell them on, saying they are his.

With all the line breeding that's going on, do you think some strains are inheriting weaker genetics?

Yes I do. I believe that it is because so many breeders make seed from very old clones and not from seedlings. I have seen so many commercial strains die out after a very short time, they get cloned so much and in the end the breeder tries to make some seed with a clone, and this is where things start to go wrong.

Why do you think there's such a big difference in prices, between seed outlets?

Like any business there is commercial competition and there will always be people out there trying to take advantage of the little guy. These things must be watch out for. Pick and choose your seed strains carefully.

What are Growdoc's future ambitions?

Hopefully Growdoc Seeds is aimed at bringing down cost to the home grower. Here at Growdoc Seeds we are so tired of all the high prices and B/S products out there that we hope to be able to bring down costs and up quality, so the end buyer (the little guy) isn't getting ripped off. These days I am working with a twin gene factor that I have found to be very strong in one of my seed lines (that's 2 plants from 1 seed). We are concentrating on the strongest plants in order to attempt full-expression of this "twin" gene... (it would be great if we could get 16-20 plants from a 10 pack of seeds). At some point in the future I'd also like to build the ultimate grow room laboratory and breed strains for the future. This would include a cryogenic freezer so that many natural cannabis strains can be protected. A cryogenic freezer preserves cells or tissues at ultra-low temperatures. The idea is to prevent amorphous ice crystals from re-crystallizing within and outside cells so that both Pollen Storage and Plant Cell Preservation can be achieved.

Which advice would you give to any future breeders?

When you find a strain that you truly enjoy take your time to get to know it- collecting all the info you can along the way. Stick to one strain for awhile, try to keep it simple, less f**k factors... And most of all, always record info so that nothing is forgotten or lost.

What is your top gardening tip?

Keep it simple. Don't go out and buy the most expensive gear you can find and don't always take the word of other people. Do some research and find out what is best for your situation and your plants... *Grow and be Free!*

After thoughts...

Whilst becoming a cannabis breeder isn't for everyone, there are very few reasons why the people that enjoy growing cannabis, shouldn't be crossing their' own. Growdoc grows to prove that cannabis can be bred for purposes beyond the recreational, and that the breeding of medicinal cannabis strains serves many wider social functions beyond just getting stoned. The secret to becoming a professional cannabis breeder involves; the selection of quality genetics; the recording of information; some travel; keeping things simple; and a good base of seed stock.

Did you know that by building hoods over them, you can raise even the late-blooming varieties outdoors? By erecting these hood constructions, in which agricultural plastic is attached over planks that are turn fastened to poles, you get a sort of tent. Thanks to this the more late-blooming plants are better protected against the wind, the rain and the often colder temperatures found in the autumn.



What Happened to Hashish?

During the last part of the 20th century, the transportation, distribution, and consumption of imported hashish supported a multimillion-pound industry across a global nexus. More recently however, there has been a noticeable downfall in the type and quality of imported hashish commercially available within the UK. In general the availability of imported hashish within Northern Western Europe has been fading for some time. The fashion and popularity of consuming imported hashish, it could therefore be argued is in decline. So it begs to ask the question, “What Happened to Hashish?”

By Lazystrain

Supply and Demand

Those that are old enough to remember the days of ‘Acid House’ will remember a time when hashish smoking reached an apex here in the UK. Many people will clearly remember travelling across town to buy a particular type of hashish, from an equally particular type of dealer. Ranging from soft to hard grades of ‘hash’, people would pick and choose between; Afghani or Pakistan Black, Indian Manali, Nepalese Temple Ball, Lebanese Gold, Rocky Slate, Double Zero, or Formula (formulated hashish). A trip across town could therefore descend into a transcontinental and transcendental journey- accessing the practices (and principles) of distant cultures, ancient customs, forgotten peoples.

During the early 1990’s the hashish scene within the UK was at an all time high. People were counting the hot rock burns in their T-shirts and levels of consumption were out-smoking levels of supply. The Criminal Justice Act of 1991 (the anti-Rave Act) like many an act since and before was far from ‘Just’. The Police started a hounding policy of ‘Stop and

Search’. Alas where liberty is removed rebellion is born. The smoking of hashish amid British teenagers quickly gathered momentum and became somewhat the norm. Everyone (well ok not everyone) was at it. Baking cakes, mixing yoghurts, building pipe-mix, heating hot-knives. From the enclaves of the local squat, the scented fragrances of hashish smoke filtered above ground into the nostrils of mainstream masses. Words like ‘teenth’ (1/16th oz) and ‘draw’ (hashish) slowly became an unaccepted part of the day to day phraseology mumbled across the UK (much like the words ‘eighth’ and ‘skunk’ are today). Terms like ‘ash’, ‘ecstasy’, and ‘rave’ came to hold several meanings. Slowly it seemed the cultural tide was turning.

Sometime during the middle of the 1990’s (perhaps 1994-95) UK hashish smokers suffered the effects of the worst “cannabis-drought” in recent history. Any younger readers will note that in the past, getting your hands on something sticky to smoke wasn’t always plain sailing (all that ‘Stop and Search’ policing). Many people ended up smoking dried-out hashish or worst still ‘Diesel’. [Diesel is

the name given to low quality hashish, which when transported inside the tanks of heavy-goods vehicles, takes on an imparted diesel taste and odour]. Finding a clean piece of resin became a bit of an effort in places. Many people remember “The Droughts”- they lasted for months

Within the UK, the numbers of puritan hashish smokers (besides those that follow the Goldie Lookin Chain) are gradually fading

in some places, in other places near on a year. The lack of home-growers a decade ago meant that many shoeboxes were emptied in attempts to keep up with localised demand. Supplies ran short. As a result the quality of cannabis dramatically deteriorated to the extent that many avenues ran completely dry. The avenues that did open often comprised of low-grade Afghan resin and/or even lower grade Colombian grass. In turn and in truth, many youths facing these UK droughts turned and/or were prodded into dissimilar avenues of recreational pleasure, including crack cocaine and heroin. Like some sort of post-war bread shortage, the selection and availability of cannabis resin became less and less... more and more infrequent.

Transportation

The trade and supply of cannabis resin and hashish are ancient practice- in places centuries older than the present-day laws that prohibit their wholesale. Since antiquity caravans of people, packhorses, and camels have transported cannabis resins and flowers from Asia into Europe along ancient silk roads. Likewise the shipping lanes of the Mediterranean Sea have long since ferried kif and hashish from N. Africa and the Middle East into Europe. Automobiles, Planes and Trains have since governed these dusty trade routes, but the basic methods of transportation have always remained the same.

For obvious reasons we cannot go into the transportation of hashish into the UK in any depth. Besides, treading old ground, we might unavoidably trend on someone’s toes, which could jeopardize the wholesale operation of many an unbeknown (more importantly it may leave someone without a smoke)! Let’s just say that transportation can range anywhere from walking through customs with personal in your pocket, to driving onto a ferry with a van full of hashish (not advisable). Methods of transportation really haven’t change that much, so we’d rather not rock the boat.

There has, however, been a noticeable downfall in the regularity (perhaps popularity) of hashish importation into the UK since the year 2000, especially out of Asia. We highlight Asia because hashish from Northern African is still transported into certain parts of the UK in

relatively large quantities. This is mainly due to socio-economic circumstances and the close proximity of Morocco. To understand the cultural processes behind hashish transportation, we must then consider the production of hashish in relation to its typography and treatment.

Topography and Treatment

Different types of hashish descend from different types of landscapes. In this way, hashish holds its own topography. Hashish is often named in accordance with its place of origin, motherland, or region. Thereafter, localized names may further reflect quality, methods of manufacture, and/or treatment. This means that there is lots of variation between hashish products depending upon how and whereabouts in the world they were made. For example, the texture of hashish may range anywhere from sticky gum-like resin to fine powdered kif (with many grades of texture in between). Likewise the coloration of hashish (which depends upon a number of things) may occur in many different shades, anywhere from jet-black, to earthen brown, to sandy gold. All of these factors depend upon topography and treatment. The best way to understand a piece of hashish (besides smoking it) is to figure out the methods via which it was made. Then we can place a finger on its country of origin, perhaps its former topography and treatment.

The following provides a rough guide to identifying the topography of some popular types of imported hashish and highlights some of the cultural practices involved in production:

Afghanistan/Pakistan: Afghani/Pakistani is a soft black/red type of cannabis resin that comes in many different grades of quality. This type of resin is produced ‘dead’ from indica flowers. Ripe flowers are usually bashed and gently heated to create a sticky substance of resin. The resin is then set into pliable slabs for transportation. Slabs of Afghan and Pakistan resin sometimes carry an emblem, motif, or pattern. This may further denote its tribal origin, and/or maker. Normally this type of resin is further wrapped in a plastic seal to keep it fresh.

Himalaya Cream



Kasjmir Pollem



The colour of the seal (clear, green, blue, gold, or red) may further indicate the quality of the resin, its maker, and/or the name beneath which it is sold.

Turkmenistan: Turkmenistan resin is no longer as popular as it was a couple of decades ago in the UK. This type of resin is dark and soft much like resins from Afghanistan, Pakistan, and Iran. Telling Turkmenistan resin from Afghan resin is best left to serious hashish connoisseurs.

Nepal: Nepalese resin is rare in the UK. Nepalese is often dark in colour (sometimes with a whitish mold). Nepalese resin isn't as pliable as Afghan or Pakistani resin. This type of resin is produced 'live' when ripe flowers are rubbed by hand to create a mass of plant resins (the most labour intensive method). Balls, lumps or slabs of the resin are then left to dry. Nepalese resin has been made infamous in the UK by 'temple ball' (cannabis-incense).

India: Indian resin is often brown in colour and textured in consistency. This type of resin is produced 'live' when fresh sativa flowers are worked in the hands; bashed against sheeting; or against people to collect plant resins. The collected resin is then worked together, like putty, to form a piece of *charas* (the name given to Indian resin). Indian charas is very regional in character. For example, Manali charas is a firm type of resin that is rubbed into fingers or sticks, (each weighing approximately 10g). Since, Manali fingers are exclusively rubbed by hand they carry a high percentage of the plant material as well as the resin itself. This type of cannabis resin is often soft to firm and requires very little heating. It's scent and taste are unique.

Lebanon/Turkey: Lebanese and Turkish hashish is now rare in the UK. This type of hashish is lighter in texture and brighter in colour than Asian types of resin since it is normally made exclusively from kif (or a kif/resin mix). Lebanese and Turkish hashish is produced much in the same way as Moroccan (see below). Usually, yellow, red or gold in colour, this type of hashish fluffs-up when heated, and carries a very subtle scent. Beware of Moroccan imitations!

Morocco: Moroccan is a hard type of hashish that comes in many different grades of quality. This popular type of hashish is made when dried flowers (male and female) are bashed against a fine grade screen or sieve to produce a substance of powdery trichomes called kif. The sandy coloured

Malana Cream



kif is then compressed into blocks (soap bars) for transportation. The appearance and quality of the hashish further dictates the name beneath which it is marketed. For example, in the UK high-grade Moroccan hashish is often called "blonde", "polm" or "double zero", while low-grade Moroccan is called "rocky" or "soapbar".

Hashish Politics

Hashish is all about little people farming large crops, making a product, and selling it for profit. Politics is all about little people in large coats, dividing an even larger world into neat little shapes- again for profit. Where and when the neat little shapes loose pattern and the farmer begins to make headway, hashish and politics converge. The most fertile breeding ground for the marriage between hashish and politics are sadly the lands most ravaged by war. An example and case study would be present day Afghanistan.

Smokable evidence (or the lack of it) suggests that, following the political and military invasion of Afghanistan in October 2001, the availability of Afghan hashish within the UK began to decline. It was believed that the wholesale production of hashish by Afghan Warlords directly funded terrorism. So a focus of the original 'War Against Terror' was aimed at the demise of the Afghan farmer. As a result, the farmer started to plant poppies producing opium instead of hashish. Sales of Afghan heroin within the UK during 2002-3 climbed- to the point that the UK

It was believed that the wholesale production of hashish by Afghan Warlords directly funded terrorism. So a focus of the original 'War Against Terror' was aimed at the demise of the Afghan farmer

'heroin market' became saturated- a gram of Afghan hashish costing more than a wrap of Afghan heroin! To combat the sudden insurgence of opium growers within Afghanistan, the "Coalition" agreed that Afghan Farmers could once again grow cannabis to produce hashish... under one (age-old) condition... that the hashish wasn't to be sold beyond Afghanistan (?).

Without going into a global debate about the socio-political and cultural-economic ramifications of hashish and heroin production, it doesn't take a genius to figure out a pattern of continuity across all the major hashish/heroin producing countries of the world. In the countries where hashish production is a traditional

pastime, yet recently outlawed (either by religious or political ideology), the production of heroin steadily increases. We are thinking primarily about countries like Iran, Turkmenistan, and Turkey, whom no longer manufacture hashish in quantity, rather grow poppies to produce opiates for sale in Russia and Europe. As worryingly, the remaining hashish producing countries, such as Afghanistan, Pakistan and Morocco are following suit by planting poppies not cannabis. Whether through cultural, political or military pressure, the global fashion for producing hashish it would appear is waning...

Hashish Demography (?)

Producing a demographic of hashish smokers has never been easy. In places as culturally diverse as the UK, it never will be. Demographics are all about populations; the who's, the what's, the where's, the why's, and the when's- the haves and the have-nots. Population statistics are thus the subject of Statisticians (people that like to count)- those that like to base general facts upon general assumptions. To talk about hashish demography therefore involves assumption, stereotyping and ethnocentrism.

For example, we could easily assume that: people in Cardiff only smoke "Soapbar" (you knowz it), or that the Scottish only smoke Afghan in "half-quarters" (eighths). That Londoners don't smoke hashish, only £50 sacs of "ses" (sinsemilla). Or that people in Liverpool only smoke dock-land polm in "flins" (sticks). That Cyber-punks

in Hampshire only toke upon "new-age" bubble (ice-hash), or that the hippies in Glastonbury only smoke natures harvest (organic charas). Such would and could ignorance draw us to believe...

If and when we look towards the facts surrounding hashish demography within the UK, one fact is often overlooked. That is that 'junkies' also smoke hashish in conjunction with heroin. They do this so as to increase appetite and prevent nausea. Demographically speaking, you can therefore be sure to find sources of hashish alongside sources of heroin (and visa versa). Irreparably, hashish and heroin often sit at the same underground juncture, the crossroad whereby soft and hard drugs converge.

We can then suggest that, in certain places hashish consumption still remains as popular as it ever has been. In other places we can definitely suggest that hashish consumption has dwindled. In some areas new hashish smokers (for better or for worse) are always learning about "the art of hashish". For example, if we look beyond the UK into Eastern Europe towards the post-Soviet Block, we notice that the downfall of the Soviet Union dropped many a hot rock onto a whole new generation of hashish smokers. Hashish naturally followed capitalism into Poland, Hungary, the Czech Republic and Russia (much in the same way as Soviet kalashnikovs find route into Asia). Eurasia sits upon the fringes of Asia and the worlds' finest hashish producing countries. Perhaps then we need look no further than our neighbors in Eastern Europe to understand the who's, the what's, the why's, the where's and the when's of hashish demography. The present lack of Asian resin within the UK perhaps indicates a decline in the trade of hashish between Western Europe and Asia. Put simply, transporting hashish half way round the globe is perhaps no longer as lucrative as once was...there being new competition much closer to home.

The truth is that the demography of hashish smokers within the UK is ever changing. It is impossible to keep tabs on hashish smokers, much like it is impossible to guess how many people are growing their own. Its all about unknown figures across unknown audiences, so at the end of the day there is no way of telling what type of hashish the person down the road is smoking...

The future:

Within the UK, the numbers of puritan hashish smokers (besides those that follow the Goldie Lookin Chain) are gradually fading. Those that out-rightly refuse to smoke anything other than top-quality hashish import, those that carry a stash-tin in one hand and a hooker-pipe in the other, are now thin on the ground. Even the word on the stra in Amsterdam indicates that connoisseur smokers are making the most of the imported hashish scene before supplies become clouded and run dry.

Besides the actual decline of hashish importation, the popularity of home growing has itself over-simplified many of the processes (and mysteries) behind hashish production and consumption within the UK. In years gone-by hashish was considered a magical substance, full of essence, harmony and fragrant flavor (and the odd piece of plastic)! These-days people grow their own ganja and make their own types of hashish from the trim waste. There is such an advanced range of DIY hash making equipment available- trimmers/ clippers for harvesting scissor-hash; screens/ spinners/tumblers for collecting kif; buckets/ bags/sacs for ice/water extraction- that there just isn't the call for imported hashish like there used to be.

The idea that the next generation of smokers might never smell the subtle scent of Lebanese Kif, the spicy perfume of hand-rubbed Indian charas and/or the heavy aroma of Afghan Black is somewhat disheartening. Perhaps, it's just another one of those things that we'll have to learn to live with....

What Happened to Weed?

In the last issue of SSUK we asked the question ‘What Happened to Hashish?’ This naturally brought about the subsequent question. ‘What Happened to Weed?’ Much like in the case of hashish, the transportation, distribution, and consumption of imported marijuana formerly supported a multimillion-pound industry across the UK. More recently however there has been a noticeable decline in the availability of ‘Imported Weed’ (lets forget about ‘Dutch Import’ and ‘Homegrown Skunk-weed’ for just one moment). By ‘Weed’ we are talking about the landrace strains of herbal cannabis (formerly) transported into the UK. The stuff otherwise known as ‘Bush’, ‘Grass’, ‘Erb’ or ‘Ganja’. So what happened to Weed?

By Lazystain // Photos by DJS & Nas



Supply and Demand

In order to talk about weed in its entirety, we must go back to a time before ‘Nederweed’ and ‘Skunkweed’ became the sole focus of cannabis culture within the UK. Flashback a decade or two and we enter a period when the UK’s Cannabis History was governed by landrace erb (and a good measure of hashish). Types of ganja would vary dramatically depending upon location and dealer. Ranging from excellent quality sinsemilla like Jamaican “lambs-bread”, Colombian “Gold” and high-grade Malawi. Through to low quality commercial, like seeded Colombian, seeded African and/or seeded Thai.

In the past, things weren’t as simple as picking up a mobile phone and pressing some buttons to score something to smoke. Finding authentic weed involved a good deal of cultural investment, some travel, mindfulness, and mutual respect (all the things money cannot buy). Allow me to digress... During the 1980’s & 90’s, in every major city of the UK, there was a house. The name of “the house” varied from place to place, but its function was always the same. The house acted much like a coffeshop for locals. Its patron would invariably sell landrace weed over a wooden counter (and sometimes hashish). People stayed there to smoke a spliff or two after work. Some of the houses also sold refreshments (chicken n dumplin’ and beer). There was no social problem! Everyone in the neighborhood (including the local CID) understood the function of the house, its visitors’ and its patrons’ intentions. Such houses provided then forgotten communities with a place to take refuge from the day to day hustle n bustle of city life. A

place to smoke a spliff of erb and reason upon the events of the day. As the elders passed away, the yout’ couldn’t find time for it, and many of the houses vanished...

Since hashish was freely available back then, and ‘homegrown’ carried its own reputation as being “green”, the acquisition of landrace weed was where it was at. It was all about finding a good source of imported grass (one that would last). To say that everything was top quality would be a lie. Sifting the bush from the grass, the seeded weed from the sinsemilla, was all part of the task. The demand for supply, and the supply for demand, was, as unbalanced as ever. Yet all the same, everyone’s aim was to come home with a nice piece of clean sinsemilla in their’ pocket. The ‘cannabis droughts’ (c1995-6) didn’t help things much (and perhaps aided in the decline of ‘The Houses’ above). Weed supplies started to run-dry (quite literally). Unscrupulous dealers started to rep. seeded West African as “Jamaican sinsemilla”. They played commercial Colombian as “Gold”. Somehow, amidst the confusion, commercial (hermaphroditic) Thai weed gained its own reputation at street level. The world of weed had been uprooted and turned upside-down. Then some folks spat at it and it grew into fiction...

Transportation

Once again we don’t intend to highlight methods of transportation in this section. The preservation of cannabis flowers is obviously an essential factor in haulage. Generally speaking (remembering that the preservation of THC is the aim) the fresher the weed the higher the quality - although this isn’t always the case. We shall attempt to explain:

Upon harvest cannabis flowers must first be dried and then cured. More often than not the second stage, the curing stage (with commercial crops) is conducted in transit. This allows two things. Firstly, it allows the farmer a quick return on his/her harvest (£). Secondly, the flowers will arrive at their destination in a saleable condition (increasing the overall value). However, if the process of drying isn’t complete prior to transit, then mold (*Botrytis*) may set in, and overall quality will be lost. On the flip side, transits that take too long to reach their destination may become brittle and dry, old and less profitable.

Invariably, commercial weed is compressed into slabs or blocks to ease transportation. This also helps to preserve the flowers during their voyage from A to B. Good quality import is more often than not, sealed somehow in shrink-wrap or thermos film. Poor quality import is usually open wrapped in cling-film or plastic bags (this isn’t a rule). For example, under more local settings, landrace strains of cannabis often arrive loose in the UK. This type of ganja is usually of a higher quality because transportation is conducted on a much smaller scale (often for individual consumption). Transported with both care and compassion, it’s often a case of who you know, not what you know (see Demography), if you want be smoking ‘breadfruit erb’ or ‘blunt weed’ or something special like that in the UK. Oh yeah, one other thing. It’s not unusual for corrupt farmers to compress good quality flowers upon poor quality flowers in the same piece. So be warned!

Topography and Treatment

Traditionally, different types of weed descend from different types of landscapes. In this way, weed holds its own topography. Weed is often named in accordance with its place of origin, like say ‘Colombian’ and its appearance or its sexual condition e.g. ‘sinsemilla’. Localized names like ‘Thai Sticks’ and colloquialisms like ‘Lambs Bread’ may also indicate the quality and treatment of an individual type of grass pre/post harvest.

The texture of the weed may range anywhere from fresh sticky buds to

the age/maturity and/or the sexual condition of a crop itself. Many of these factors depend upon annual methods of cultivation (employed by the farmer him or herself): usually related to individual perceptions around cannabis and its wider commercial value within “westernized” market-economies. Put simply, the seeded weed outweighs the sinsemilla, and weed farmers understand this!

The best way to understand a piece of weed (besides smoking it and remembering the effect) is to study its physical condition; the anatomy of sepals, its phyllotaxy, the structure of leaf, its approximate age, the number of seeds represented, the scent, smell and taste. Then, with practice (and lots of hindsight), we can place a finger on the country of origin, perhaps even its former topography and treatment. For the majority imported flowers are usually of the ‘sativa’ type in the UK, with indica type flowers being much rarer.

Identifying the topography of imported weed isn’t easy. It’s a subject about which very few can profess to be expert – those that ‘can’ often can’t remember everything off-hand, and those that ‘do’ usually rely upon hearsay. We could go on to discuss the many different varieties of landrace erb once available within the UK. This might include *Ganja* from SE Asia (India, Laos and Thailand), *Bush* from Africa (Gambia, Kenya, Malawi and Swaziland), *Marijuana* from the Americas (Mexico, Colombia, Jamaica, and the Caribbean). All of which have been smoked, at one time or another, during the past decade in the UK.

Weed Politics

Weed politics stretches the globe - from Kenyan Bush Masters to Jamaican Hill-farmers, from Indian Holy-men (Sadhu) to Colombian Gorillas. The political implications of weed cultivation and consumption therefor cover some distance, few religions, and many an undisclosed motive.

As an embargoed product, even where the consumption and sale of imported weed is tolerated (places like Holland), the importation of the same weed is often forbidden. For example, European Law stipulates that one E.U country may

The selection of landrace weed available these days in the UK largely depends upon a need for supply, as opposed to a need for demand. This means that scoring landrace weed has become more a speculative hobby than an enjoyable pastime

old powdery leaf, with many grades of texture in-between. Likewise the coloration of imported weed, (which may depend upon a number of different things including soil type, the use of fertilizer, methods of curing and transportation) can occur in many different shades, anywhere from emerald green, to earthen red, from gray/black to mustard yellow.

The ‘Harvest’ of landrace weed is directly related to topography. Factors such as, microclimate, procreation techniques, and ancestral practices often influence

not hold an economic monopoly over a neighboring E.U country, by trading in a product that its neighbor cannot. A case of “unfair” economic trade would exist. The Dutch could say, for example, legally import flowers from, lets say Cambodia, and sell the same flowers in a coffeshop at profit. The next country, lets say France, would get pissed, because the French would be tempted to go spend their weed money in Holland...(such is the situation at present). Economic bureaucracy is then one of the main reasons why imported cannabis is

“tolerated” in Holland, yet remains as an “illegal” product to import, and sell (and that’s not to mention any form of taxation)! Basically, for imported cannabis flowers to be made ‘legal’ within the UK, weed would also have to be made legal to import into every other country within the E.U.

In the places where cannabis grows wild there’s really very little control over what is grown where and by whom. (It’s not like Nature can be shackled behind bars for growing cannabis). This is where those countries that support systems of legislative discrimination towards a native species of flora fall constitutionally on their dumb faces. You can’t stop people walking into the wild and picking flowers! Politicians then place all emphasis into stopping people from growing the same flowers in neat little rows; by burning them or spraying them (and everything else in the vicinity) with chemical herbicides. Intoxicated beneath their own sense of grandeur the same politicians then proclaim in an invective tone, that their work be “Progress”. The subject of weed politics is then not only frustrating but equally a very silly debate in places... bound by corruption, misfortune, and false-good.

Weed Demography (?)

Despite resent media efforts to polarize cultural opinion within the UK, it exists that we live within a multi-cultural society. The seasoned stoner will appreciate multi-culturalism for its true worth. Understanding that demographic relationships are advantageous, especially when it comes to smoking grass. It therefore goes without saying that the person down the road (the person that doesn’t look like you) could well be holding some of the finest imported cannabis flowers you’ve ever had the pleasure of smoking. The real trick here is never to judge a book by the book that sits next to it...



The first signs of weed demography are usually airborne. A subtle sense of smell is then all that is required in order to lift the weed scent from the Skunk. When out and about, at the local festival, the carnival, dancehall, or any cricket match against the West Indies, both experienced and inexperienced smokers will promptly notice the translucent aroma of an almost familiar scent, one you can’t quite find. The smell of nice cannabis flowers within any crowd usually escape the reefer to which they belong (which is bloody annoying at times), but none the less its always fun trying to find out which smell came from which spliff. This is also one of the best ways to make new friends at social gatherings and parties.

The second signs are always visible. Usually, the people that keep themselves to themselves in one corner or another are there for good reason (!) The occupier of a coned shaped spliff, a clay-chalice, those little wooden stash boxes and/or coconut-pipe always figure high on the ‘erb in hand’ list (if not they know a hand that has). So do smokers whose ethic or religious perspectives differ from our own. Please note that this isn’t to say that people should be pulling the vest-strings of every-other Rasta!



Neither does it go to presume that all Hindus follow the path of Lord Shiva! Remember that for many, the erb is a plant used in sacrament and meditation as much as recreation. Weed is then, in places, very much a part of the day to day. Let’s not disturb this with our over-zealously. In other places, weed demography is bound by cash-money. The best quality weed (usually) goes to the highest bidder. In a market economy, there is very little avoiding this.

Finding imported landrace weed then involves dispelling many a myth and crossing several boundaries – the boundaries that are designed to keep one person from chilling with another. Radicalization is a dirty word! So is Cannabis! Such is society’s demise. In ganja circles prejudice is coincidental to shared opinion. Many an older wiser smoker, that doesn’t find reason in procreated cannabis, finds reverence in wild populations of weed. Be it an organic issue, one of false manipulation, or simply the admittance that cannabis naturally sets root in and descends from the ground. Many of these people find a familiarity in imported weed that cannot be found elsewhere, and in many cases this helps bridge the gap between young and old, rich and poor.

The future:

The future of landrace weed in the UK is quite frankly bleak. Perhaps one of the main reasons why cultivation has become so popular amid home-growers more lately is due to the lack of landrace cannabis available at street-level. Then again, perhaps it’s the fact that most smokers have developed a taste for imported Nederweed. Either way, people these days like to smoke ‘skunk’. Ask a dealer for a weed and he/she will give you a bag of skunk. At this point the serious ganja smokers might want to pack their suitcases and book a flight to Amsterdam, Acapulco, New Delhi, Kingston, Phnom Penh, or some other place where the grass is still green (or yellow, brown, red).

The selection of landrace weed available these days in the UK largely depends upon a need for supply, as opposed to a need for demand. This means that scoring landrace weed has become more a speculative hobby than an enjoyable pastime. There are however, many species of landrace cannabis now available for retail in seed form. Many growers on the other side of the Atlantic have aided this motion by isolating some of the more popular strains of cannabis floating around the world during the 1960s and 70s. This means that it is quite possible to recreate whatever it was that got you high all those years ago. Likewise those that have never tasted cannabis flowers at their best are free to do so in the peace and serenity of their own garden.

Whilst it was always possible to collect seeds and grow your own grass either from the dope you’ve been smoking, or from a retail source, there is something special about smoking cannabis flowers that descend directly from their region of origin. Weed that has been generatively nurtured, in the same foothills, since cannabis cultivation in that part of the world began is a trip unto itself. A transcendental journey that skunkweed, somehow, doesn’t, wouldn’t or couldn’t somehow match...

SHOP REVIEW

R & B Hydroponics, Grimsby



It’s a pleasant job, reviewing shops for SSUK; every owner has a different story and they all share an enthusiasm for their business that is infectious. But the story behind the shop front of R & B Hydroponics in Grimsby is a whole new league. Roy and Bill started R & B nearly three years ago now. Roy was born with cerebral palsy which affected the movement of his legs. He wasn’t working, hanging around with some pretty dodgy individuals. “I wanted to get in to work, but I didn’t want to do some desk job behind a computer like the employment agencies were keen to push me into,” he says. He’d been interested in hydroponics for 12 years. “I can’t stand on a spade, so hydroponics represented a gateway to a world new world for me. It really stimulated my brain.” He’s grown flowers, peppers, a banana tree – you name it; it’s all been a transforming experience. His partner-to-be Bill had worked in Israel for six years on the drip technology hydroculture used out there. Why didn’t they combine their passions in a business? “People just laughed at us and said we’d never do it. Now my old mates from back then avoid me because they’re jealous of our success,” says Roy. They got a small grant from the Prince’s Trust Fund, qualified for test trading (whereby he got to keep his dole for 16 weeks and plough takings back into the business), and Roy sold his pride and joy, a touring bike he’d

traveled around Europe on. Along the way, he found his confidence transformed. “I discovered out I’m a really good salesman; it has really turned me around.” A strong stutter has all but disappeared. “It’s the best job in the world; the hydro industry is filled with really nice people, and I’ve had a great time at various hemp fairs in the UK,” says Roy. Doctors had once said he would never manage to walk. “I’ve always been a fighter and a doer.” His transformation has been helped all along the way by the medicinal qualities of the herb his gear can be used to raise, he’s happy to point out. “It helps me every day,” he says. Along with a number of other customers, with trapped nerves, suffering from car accident trauma, etc.” The Prince’s Trust and test trading people now use his case as a testimony for how well their schemes can help. “They came to us and said: this is exactly the sort of thing we’ve been trying to do.” Roy and Bill nowadays not only run a successful business; it’s a mini-Green University and social drop in as well. “We’re here for people to come and have a coffee with and a chat, says Roy, mentioning the complete ignorance in the area as to what hydroponics was and what you could achieve with it. He has fulfilled an almost evangelical role to the locals, nurturing them through the simplest set ups, while catering for those who start to spread their wings a bit. Now the business is established, he’s keen to pass on to other kids, especially those with disabilities, the joys of hydro. As for stock, Roy and Bill started out with virtually nothing: the bare bones minimum to get a working display up and running of what hydroponics was. Lettuces in fact. Today, R & B stocks the full range of soil and hydro growing essentials; soils, mediums, equipment, nutrients, and stock seeds from Hemcy Seeds. Currently flying out of the door, says Roy, are Nutriculture’s Wilma all-in (8, 10, 12, 20-pot) systems. “They run themselves and are very popular with people who don’t have all day for fiddling around: people in work, with kids, people who don’t want to be knocking on some dodgy geezer’s flat any time they want to chill out.”

R & B Hydroponics, 78 Durban Road, Grimsby, NE Linc's, UK.
Tel: +44 (0) 147 224 1114
Open: Mon - Fri 10.00 am - 6.00 pm; Sat 10.00 am - 4.00 pm.
www.r-b-hydroponics.co.uk

Plant Immune Systems

By Steve Davis

The world of plants and humans is a place of attack and defend, especially on the microbial level, where tiny organisms are trying to use larger organisms as hosts and food.

Human bodies defend themselves with two types of response when attacked by pathogens. One response begins as soon as the body perceives a threat, such as a wound that could introduce pathogens into the body. This is called the innate immune system response.

After the innate immune system responds, usually by trying to prevent pathogens from entering the blood stream to spread throughout the body, a more complex “adaptive immune system” takes over. The adaptive immune system does more than just isolate pathogens- it creates a total-body, coordinated response involving antibodies and other tactics.

Plants also have an immune system that responds to harmful pathogens and insect predators. Some of the pathogens that plant immune systems counter are species of fungi. Marijuana plants are susceptible to at least 100 species of fungi, including the dreaded botrytis cinerea, otherwise known as gray mold, which can destroy an entire grow room’s ripe buds in 72 hours or less. Marijuana clones and seedlings are especially vulnerable to pythium fungi that attack seeds before they sprout, emergent seedlings, established seedlings, and clones.

Another fungi species that plagues cannabis is powdery mildew, which produces a white dust-like substance that suffocates plant leaves while sucking nutrients out of the leaves. Marijuana plants can be attacked by viruses, the most virulent of which is hemp streak virus, and they are also susceptible to attacks by harmful bacteria.

When a marijuana plant is attacked by fungi, virus or bacteria, its innate immune system engages the attackers. This system’s forward guard is a “sentry” that senses invasive organisms inside and outside the plant. A receptor on the cell membrane can detect the “legs” used for movement by pathogenic bacteria. Inside the cell after pathogens are detected, chemical reactions carry signals that alert the cell to danger. The cell then initiates a series of responses, some of which notify other cells that the plant is under attack. Other responses, such as releasing substances that alter pH or producing nitrous oxide and proteins, seek to destroy the pathogen, but may also destroy the cell itself; scientists call this “programmed cell death.”

The plant’s immune system guards against pathogenic invaders that colonize the surface of stems and leaves, and it also fights parasitic insects. It is a highly-evolved system, but it depends on its evolved ability to recognize threats and the organisms that threaten cannabis are constantly evolving new forms, some of which plant immune sentries are unable to detect.

If a pathogen is able to colonize inside or outside a plant without being detected by the plant’s sentry systems, it’s likely that the invader will be able to take over the plant, which will eventually destroy it.

The use of chemical poisons, monocropping, sea of green and other industrial agriculture techniques furthers the rapid evolution and spread of pathogens and insects, and presents a major challenge to cannabis growers. This same principal was at work in the case of avian flu, which was created when factory farming put hundreds of thousands of chickens together in Thailand in one small area where viruses could jump from bird to bird, mutating to resist antibiotics as they were transmitted between each chicken. If factory farming of meat and poultry did not exist, problems such as avian flu and mad cow disease could not have developed and spread as they have.

Plant immune systems work with other plant systems to resist external threats, such as pathogens, insects, drought, heat, and environmental toxins. As with humans, a plant that is otherwise extremely healthy and facing no other negative stresses in its environment will often be able to rise to defeat an acute challenge from a solo pathogen. However, if marijuana plants are being grown in less than optimum conditions, their immune systems and overall vigor are already weakened, making it easier for pathogenic attacks to succeed.

Conditions that weaken a plant’s ability to defend itself include improper temperature and humidity, inferior nutrition, inadequate lighting, incorrect light cycles, lack of sanitation, biologically-inactive root zone, polluted water or air, plant crowding, and other factors. The more of these factors that exist, the more stress the plant is experiencing, and the less able it is to fight off pathogens and insects.

When a plant is attacked, it channels precious energy and resources to defeat the invader. Programmed cell death and other immune responses can temporarily force the plant to divert energy away from growth, maturation, flowering, and resin production. This diversion can result in slow growth, delayed maturation, smaller harvests, and less potent marijuana.

Slow growth and delayed maturation are often signs that plants are being attacked by pathogens, and can be useful signals for pathogen detection even when more obvious symptoms of pathogenic activity, such as the visual evidence of mold or mildew, are as yet absent.

If you are a conscientious, professional and diligent marijuana grower, you will have designed your garden environment to minimize the risk of pathogenic infection. This includes a thorough cleansing of the grow space prior to installation of sterilized components. It includes use of extreme filtration that will remove pathogens from air and water. It includes use of sterilized equipment, root media, irrigation tubing and other components.

Even with these precautions, and especially in situations such as outdoor growing where total environmental control is impossible, intelligent growers have begun to utilize a formula that acts as a sort of vaccination for plants.

When a vaccine is administered to humans, it contains a tiny dose of pathogen that stimulates the human immune system to prepare a pre-emptive immune response that gives the body an advantage if the pathogen attacks the body en masse.

When a vaccine is administered to plants, it does not contain tiny doses of fungi, but it does contain components that stimulate plant immune systems. When plant immune systems are stimulated in this subtle, pre-emptive manner, they can respond more quickly to create internal or external responses that ward off pathogens and insect pests.

Indeed, some veteran marijuana growers believe that “stressing” a plant creates an immune system response that produces more resin, which is often believed to be produced as a means of repelling or immobilizing insects. In the 1960’s and 70’s, for example, Latin American growers of classic varieties such as Colombian Gold and Panama Red would pound small nails into the stalks of their plants, hang rocks from their branches, underwater them, or shake them violently, all in hopes of inducing a stress response that would make plants produce more potent resin.

Marijuana horticultural product companies tend to approach pathogens and insects by offering modified and supposedly less-toxic versions of pesticides and fungicides containing natural products instead of chemicals. The safety of some of these products when used in floral phase is uncertain, and the efficacy of such products is doubtful.

Seeking an alternative to the ill-advised use of external chemical sprays or devices such as sulfur burners, scientists at a Canadian company called Advanced Nutrients discovered how to create a vaccination for plants. Their goal was to create “induced systemic resistance” to disease, pests, and other threats. The product they created, called Scorpion Juice, uses several key components to stimulate a pre-emptive immune response in marijuana.

During the design phase of Scorpion Juice, their scientists noted the similarities between plant responses to attacks and human responses. When a human is invaded by viruses, harmful bacteria or other pathogens, the body reacts with fever, swelling, redness, inflammation and other responses. When pathogens or insects attacks plants, plants respond using some of the same methods, such as lesions on leaves, loss of leaves, and the release of cell to cell chemical signalers that place the entire plant on alert against the invaders.

During their research, the scientists found the vital role that a naturally-occurring form of aspirin plays in plant immune system function. Drug store aspirin is actually a chemical analog of this natural form of aspirin. The chemical analog was created by the Bayer Corporation in

1859, based on a natural material found in willow bark and other plants, known as “salicylic acid.” Bayer’s aspirin is acetylsalicylic acid.

Salicylic acid is found in many plants and trees, and is believed to be a first line of defense against pathogens and other invaders. Plants release a large amount of salicylic acid when they are attacked by pathogens; this corresponds to subsequent releases of other plant proteins that also appear to promote plant survival.

Studies show that plants treated with salicylic acid became extraordinarily resistant to powdery mildew, which is one of the most persistent plant diseases that affect marijuana.

One Cornell University study found a protein and gene pair (salicylic acid-binding protein 2- SABP2- and its gene) that facilitates inner-plant communication that is believed responsible for increased plant immune system response. The Cornell researchers said that using immune system enhancement rather than pesticides, herbicides and other protective measures was a safer way of helping ag crops battle threats.

In studies involving tobacco mosaic virus, which has been known to attack a variety of plant crops including cannabis, scientists found that SABP2 triggered release of salicylic acid, which then created a “hypersensitive resistance response” that included programmed cell death at the site of the attack as plant cells sacrificed themselves for the overall survival of the plant. The cell death isolated the attacking organism so that it could not spread throughout the plant.

Using natural formulas on roots and leaves to create induced systemic resistance is a delicate art. It is the same when using vaccines to inoculate humans against disease. Some humans will develop symptoms of a disease after they have been given a vaccination for the disease. Their bodies were unable to handle the small amounts of pathogenic material that the vaccination infused into them.

Similarly, growers using products such as Scorpion Juice should closely monitor their plants to ensure that the proper amount of immune stimulation is taking place. Too much stimulation can slow growth and divert energy from floral production. The proper amount of immune stimulation, combined with nutritional support such as silica, vitamin, and enzyme augmentation, gives marijuana plants an enhanced immune response that gives them a much better chance of surviving pathogenic attack and also increases metabolism and vigor, which results in higher yield and potency.

For more info visit www.an-europe.com



Wastewater

By Lazystrain

In the last copy of Soft Secrets UK we looked at the ecological implications of growing cannabis indoors. In this issue we shall take a closer look at the ecological implications surrounding water use and irrigation techniques implemented in the UK. Irrigation is the practise of managing water for agricultural and horticultural application. The use of water by both indoor and outdoor gardeners is one of the most important aspects of growing. Plants need water in order to survive - so as to photosynthesise. In a holistic sense, water is also one of the principle elements (like wind and fire). It is then surprising to learn that many gardeners view water as just another unconditional resource.

Water and Photosynthesis

Water uptake is essential to plant-life that transpires. In cannabis plants *photosynthesis* governs that water is absorbed via the plants' root system and then evaporated from the plants' leaves via the *transpiration stream*. Conversely, the leaves also absorb some moisture and root systems transpire gases into the soil. The water that remains in the plant is used in photosynthesis.

To conserve water, say when a plant's root system becomes too arid, the *transpiration stream* is disrupted and the plants stomata (leaf pores) close. Likewise, at the point when a plant's leaf-panels become too hot or too cold, stomata close and water uptake is temporarily disrupted. The transpiration stream then regulates the amount of water that a plant can absorb in relation to its rate of transpiration. Respiration (breathing air) in cannabis takes place all the time, although photosynthesis stops at night. Without a regular supply/ source of water, cannabis plants cannot survive.

Plants then take up water fluids through the roots into the main stem and distribute this water (and nutrients) branch by branch into the flowers and leaves with growth. Cannabis plants prefer a clean supply of water that has a balanced pH (often close to neutral). In nature, soil substrates do the majority of the work, converting water pH and EC levels based upon soil type, geology and the surrounding water table. (For this reason some outdoor spots are more suited to cannabis cultivation than others!) Indoors however plants are usually fed water from the nearest most available source.

Water Sources

The source of water, upon which plant-life feed, directly relates to the health, wellbeing, and status of a crop. Finding a clean supply of water is then one of the most essential parts of gardening. We are after-all what we eat.

Water may come from one of several sources depending upon individual supply. These might include; *treated mains supply water* (domestic use), *untreated mains supply water* (industrial use), *rainstorm drain water* (industrial/ amenity use), and *drawn water* from wells, rivers and lakes (amenity use).

Treated Mains Supply Water - is the most available and most expensive sources of water, straight from the tap (how ignorance is bliss)! Tap water contains stuff like - (off the top of my head) - chlorine, fluoride, parasites and lead! Obviously, this depends upon the age of the pipes (and state of repair) between the mains and the tap. If your not happy with your tap water, you can always request the local water authority carry out one of those 'water test'. Most serious practitioners, however suggest that treated tap water should be stood for 24 hours before use. This helps remove the chlorine, which mostly evaporates, although the fluoride, worms and lead remain. On a small scale treated mains water can be further "treated" by filtering (with a water filter) to remove such impurities.

Untreated Mains Supply Water - is not safe for general consumption. Typically, water that isn't from designated drinking water taps contains many unknown microbial-bacteria parasites and diseases (all found at the bathroom tap)! Water tanks that sit in lofts are introduced with fresh flushes of dirty bacterium on a daily basis (every time you brush your teeth, wash your hands or flush the toilet!). In turn untreated water is liable to infect soil and plant-life (more so than the treated stuff). Unfortunately, cannabis grown in an industrial environment is usually fed this grade of water, which often contains higher traces of metals, like lead.

Rainstorm drain water - is the most ecological way of watering outdoor gardens, period! Rainwater has a near neutral pH. When fresh (not stagnated) and filtered, this type of water can also be used on indoor crops safely enough. Rainstorm drain water that has travelled any distance through old underground or terrestrial piping is however likely to pick up many impurities on route (see '*(Un)-Treated Mains Supply Water*' above). The supply of rainstorm water is also liable to run dry in summer and/or freezes up in winter frosts.

Water Treatment

Having substantiated a supply of water, many gardeners next choose a course of water treatment. Sometimes adding extra nutrients, beyond those already represent in the water. For example, water from the (treated) 'Cold Tap' has an EC that fluctuates between 0.4 and 0.6, whereas water from the (untreated) 'Hot Tap' has an EC of 0.8.

The organic grower who holds little to no regards for pH and EC levels

might at this point want to think again. Simply adding a homemade worm cast/guano tea and/or a dose of organic nutrients to feed doesn't discount the non-holistic properties the water holds already. If investing in a pH kit and EC truncheon and a filtration system is the answer - so be it - you'll then be growing in a much greener and cleaner way.

This article, if you hadn't already guessed, is pretty much aimed at 'The Other'. 'The Hydro-Grower' - who while holding the most utmost respect for the value of pH counts and EC levels (in the tank), happens to place all his/her Waste Water straight down the drain with every flush!

Wastewater

Wastewater is a funny term. To waste quite literally means - '*using something in an extravagant way or without getting enough results*' (Oxford Dictionary). To put it another way, waste represents a failure to use something. But then again wastewater is something we throw away (?) The fact is many hydroponic methods resolve around a system of water renewal and exchange- of wasting water. Hydroponic tanks are always in need of a periodical flush with fresh water to relieve systems of excess salts and nutrients. Toxins typically build-up quicker in non-organic substrates than within organic mediums, especially when using chemical nutrients and application fertilisers.

At the point when a water-solution is no longer reaching its required EC or pH, hydroponic tanks are habitually emptied as 'wastewater' - into the nearest available drain. Any chemical nutrients that have not been used up by the plants at this stage (often the reason for flushing in the first place) enter the water system, about which we have already explained isn't completely fit for human consumption, even when treated. Perhaps this explains why the tap puts out different readings of EC on different days (?)

Water Conservation

Conserving water isn't just about turning the tap off between brushing and spitting. It has much more to do with the ecology of the water itself - thus ultimately the quality of the water we make available

to our plants. Chemists and horticultural scientists have long since understood that adding too much non-organic water-soluble fertiliser to our water systems is bad news. It screws with the ecology of everything in the long term. The effects of too much agricultural nitrogen and pesticides have already polluted many European waterways, destroying natural habitat as silt deposits shift into once thriving wetland areas - choking animal and plant-life in the process. Perhaps the clearest sign that the water we draw life from is polluted, is the fact that we must now treat almost every source of lowland water in the UK before drinking.

Conclusion

More recently, those concerned with water management in the UK have started to clean up their act. Migratory fish stocks are slowly starting to rise, as are the number of sightings of otters (both clear signs that our watercourses are becoming cleaner). Ecological pressure from the people in green wellies slowly debates (with the people in clean shoes), what's right and what's wrong? But there is still such a long way to go before our water is fit for drinking.

With the current trend in hydroponic cultivation in the UK it makes us wonder if this process is set to reverse? Thousands of amateur (and commercial) horticulturists' pour thousands of litres of wasted, old, and/or disused nutrients, toxic salts, pH buffers, and pesticides down the drain every day without ever thinking where it all ends up. This isn't to say that all hydroponic growers are harming the earth. It's just that a very large percentage of them are (even if they are oblivious to the fact in process!)

Luckily the hydroponic industry is slowly backtracking on original thoughts. Ebbing towards hydroponic systems and substrates capable or running organic component feed (which when dumped down the drain causes far fewer problems in the long term). Ultimately, even the conscientiously minded organic grower, who falls foul to the sources of water with which they are presented, might want to pop out and snatch an EC truncheon and a pH pen and do some testing. Understanding the value of the water we use is as fundamental to our survival and existence, just as it is in plants. Please don't forget this.

When you set out to grow big marihuana plants in the ground for the first time, it is important that you first of all dig a large hole. The soil that is excavated is placed in a separate pile. We then fill the hole with an enriched soil mix and add fertiliser to it. The most heav9ily enriched soil is the first layer shovelled back into the hole, so that the roots of the plants will have immediate access to well-enriched under-soil. The soil that was first dug up came from deep in the hole and is usually of poor quality (contains too little humus). This soil is left to one side, or we can use it to cover up the richly fertilised soil layer.

Bunz's odour neutraliser

How to build your own inexpensive odour neutraliser

Bad smells, stink and hefty weed odours is something every indoor cultivator needs like another hole in the head. Because the problem arises as a result of growing activities, it is logical to take preventative measures. Many weed growers use carbon filters to get rid of weed smells and that can often be expensive, depending on the size of your space, of course.

For those starter growers and other interested parties, investing in ventilation and filters can be a big step and it's great if there are cheaper methods that are still effective. One of these methods is to build an odour neutraliser. These work excellently and are easy to build and cheap to run and you can easily make and use more than one. Plus it has the advantage of being useful anywhere, even in the toilet and is efficient enough to drive off the smell left by a baby's bad nappy. Anything that smells bad can be exorcised by this gizmo.

What you will need to construct the odour neutraliser is:

Either a computer driven ventilation fan or a normal rotating fan €30.00

Air freshener product such as Ona or Febreze €10.00

Hydrogel (polymer crystals) €10.00

10-20L plastic bucket with lid € 4.50

You can use either a computer generated ventilation fan or a regular one. On the first photo you can see all the things you require for this project so let's make a start. For practical purposes I use a large bucket but you can use either a smaller or larger one with no problem. Cut a hole in the lid large enough to fit your ventilation fan and then secure it to the lid. There are many ways to achieve this so choose one that is suitable for your lid and your fan. If you look at the photos you will clearly see how I mounted my fan. Once that is done, you need to cut large holes into the sides of the plastic bucket. That is all the heavy work done and now you can fill up the bucket with the other ingredients. To nine cups of water, you add one cup of smell neutraliser product such as Febreze or Ona and add a half-cup of polymer crystals. Place the lid on, turn on the ventilator and within 5 minutes the whole place should be smelling good and clean and fresh.....

The workings of this method are simplicity itself. The foul air is sucked into the bucket where it comes into contact with the air freshener and so becomes clean as it is once more blown through. The neutralised product absorbs all the bad smells and the polymer crystals serve to suck up the moisture which ensures that the air freshener lasts longer so that you only need to add a little more occasionally. The crystals themselves work well for many years and can swell up to fifty times their original size.

The only maintenance necessary for this odour neutraliser is to top up the water and air freshener now and then. Normally it needs no extra attention for about four weeks at a time. There are about five different kinds of smell neutraliser that you can use, be aware that other similar products will not work. Other smell absorbers will also work, even the soluble variety and these come in different colours and perfumes. So dare to change your Cannabis fumes into a vanilla flavoured fragrance.

All in all this is a very efficient and inexpensive alternative to carbon filtered exhausts. A combination of the two is the best way to be absolutely sure that you are not pervading the atmosphere with a bad pong. A smaller version of this odour neutraliser can be used in the bathroom or living room where it can efficiently eradicate even cigarette stink. Its a good idea to keep one in your communal space just in case any whiffs from your grow space invade while you have visitors. Often one does not notice the smell of one's own hole and in this way you can be sure that you stay sweet. Prevention is always better than the cure and you'll be amazed at how much the smell in your grow room can be changed.

The only problem here is that you might end up with such a nice smelling place, that all your friends would want to be there all the time.

Have good clean fun!

bartb@ganja.com



How to take and use pollen

By Aja (from the USA)

This is a simple method of collecting and administering pollen to your female plants in a shared environment.

Collection



As the picture shows, this male plant is raring to go. (My totally simple pollen collection technique in action.) I recommend doing this only after you have closed the ladies up for the night. Shut off any fans in the vicinity, as pollen is an airborne 'agent' and will travel for quite some distance if allowed.

Also be considerate of household members that are sensitive to pollen.



1) Place a dry, sterile, open bag/container under the opening male flowers.

2) Gently tap the stem with a finger. The pollen will slowly settle into the container. (If you are careful, only a few flowers will fall into the mix.

3) Remove any flower/plant parts that land in your container with the pollen. Tap them off gently before removing, to recover the pollen. (Moisture = BAD)

4) Dilute pollen with sterilized flour at a four-to-one ratio. This will allow more coverage if required (Optional)

5) Refrigerate until use. (Viable for around 3-5 days)

6) Immediately change your clothing and clean up before going near your female plants.

Also, it is a good idea to isolate your pets during this time. I had a cat run in once when I was collecting pollen and after I chased it out, it promptly ran downstairs and into my Flowering room. A month later I had some very unusually crossed beans! This is a real easy and practical method for harvesting a small amount.



Pollination disclaimer: This method is not recommended for everybody. Cross-pollination is often a result of pollinating plants in the presence of other females. Proceed at your own risk!

Due to weak branches, space and size considerations, etc., it may be necessary to pollinate your plants without removing them from the others. If possible, I would advise removing the female to be fertilized prior, but when that isn't possible, this is a good alternative.

Step 1

Wait till the grow lights go off as scheduled, and shut down all of the fans. Adjust your timers to eliminate 'surprises'. Eliminate any drafts in the outer and adjoining room and shut off your furnace/AC. The room must have zero air movement before you begin. Place a small garbage bag in a pocket at this time, later you can put all of the pollen 'tools' inside it when finished.



Step 2

Strategically locate the female(s) to seed next to each other and against a wall earlier in the grow. Now prepare a clear plastic drop cloth to isolate these plants from the rest of the garden. The plastic featured here is 4' high and 7' long. Tape a straight edge against the far side of

the tarp so that you can anchor it against the wall securely. You do not want it to come down! Use the thinnest plastic you can find to avoid excess moisture and damage to the plants. Because it is thin, be very careful to avoid damaging it.

Step 3

After arranging your divider by draping it loosely between the plants, (do not anchor it yet), mist the floor, net pots and buckets with distilled water. This will neutralize any errant pollen that drifts by or lands on the floor. Thoroughly mist the other plants that you do not want to pollinate, being careful to avoid blowback on the plants to be fertilized.



Step 4

I prefer to wear tight-fitting clothes during this procedure to reduce pollen transfer. Carefully retrieve the pollen container, put the brush inside (a Q-tip will work for smaller amounts.) and place it into a larger, clean, storage bag. After sealing it shut, wipe the outside with a damp cloth to remove any pollen. This is important, you do not want any pollen to escape during the trip to the selected plants.

Step 5

Select the branches that you intend to fertilize and label them with computer labels. This will aid in identification later. Avoid going overboard here. A single MJ plant is capable of producing several thousand beans; only pollinate a few depending on your needs. Make sure that the branches to be pollinated are in an area that will get good light coverage. Avoid pollinating the extreme lower branches, as they will likely not mature into viable seeds.



Step 6

While wearing gloves, position the bags nearby and below the branch and lightly coat the paintbrush with pollen. While holding the brush a short distance (3-6") above the target bud, lightly tap the brush, releasing pollen onto the fertile flower(s) below. Do not contact the flowers directly with the brush. The 'tap' is similar to tapping off the ash on a joint, be careful, a little pollen goes a long way. For interior buds, simply tap the end of the brush lightly against the stems. Try to select branches that are nearest to a wall, to avoid direct contact with other non-pollinated branches. Cross-pollination will occur anyway, but usually only a few extra seeds are a result.



Step 7

When you are satisfied with the coverage, seal up the inner bag, remove your gloves carefully and place them in the larger zip lock before sealing it as well. Now place the bag into the clean garbage bag that was previously secured in your pocket. You may wish to remove your shirt slowly and place it in the bag as well. Keep a wet washcloth nearby to wipe off your face, arms, legs and other pollen magnet areas. Doing this will reduce the spread of pollen as you leave the area. Remove the pollen bag from the room and return after washing up.



Step 8

Secure the far end of the plastic barrier to the wall. Be careful to do this slowly to avoid stirring up the air/pollen. Secure the end closest to the door using squares of stiff cardboard and tacks. These are essentially homemade roofing felt nails and will prevent the plastic from tearing. Now shut them in for the night, making sure that the fan(s) are still disabled. You may need to raise the lights during the lights on period to compensate for the lack of fans. This continues for 48 hours. On the third day's lights off time, mist the fertilized plants thoroughly to take out any viable pollen that remains behind, in the morning turn on the fans and adjust the light(s) as normal. Remove the plastic divider after one week when you are certain that there is no contamination threat. Remember at the end of the grow to thoroughly clean your grow room with a damp cloth to remove all traces of pollen.



Four to five weeks later, you should have a bunch of viable beans to grow or share with your friends and nature.

Good luck!

How to use the Bubbleator

- 1) Place your Bubbleator on a raised platform and the bucket on the floor. Put the screen bag in the bucket, in the three bag set this is the 70mc bag. If you have multiple crystal collection bags, place them in order from finest to most porous. The order if you were using all available bags would be 38mc, 70mc and finally 90mc.
- 2) Half fill the Bubbleator with cold water. Then add the ice, if you have large chunks of ice, be sure to break them up in ice-cube size pieces or smaller. You can now set the Bubbleator to run for 2 minutes to mix the ice and water. Check the temperature has reached approximately 4°C, if it is higher add more ice and mix again.



- 3) Fill the pyramid bag with up to 500 grams of frozen leaf material and place it in the Bubbleator. Then close the Bubbleator's lid and set the timer to between 3-8 minutes. It will now start to agitate the leaves.



- 4) When the timer has reached 0, you can open the Bubbleator's lid and squeeze all the water out of the leaf material in the pyramid bag. Then put the smallest screen bag around the hose, while holding the hose up. Hang the hose in the bucket and let the Bubbleator drain.



- 5) Remove the screen bag from the hose and place the hose back onto the Bubbleator. Remove the first bag (if you are using multiple bags) from the bucket, dunk it in the water 2 or 3 times, so all the crystals gather in the middle. Squeeze all the water out with your hand first, then with a piece of kitchen paper.



- 6) Put the crystals in the kitchen sieve and push them through (e.g. with a spoon) onto a piece of paper. This is necessary to dry the crystals loosely and avoid molding. This takes about 48 hours, after which your crystals are ready for use or pressing. You can repeat steps 5 and 6 for the other screen bags, if you used them. You should rinse all of the screen bags with cold water immediately after use. Any dried up crystals can be removed every 2 months using alcohol (96%).



Requirements

- Dried, frozen leaf material
- 1 bucket
(+/- 30cm diameter)
- Kitchen paper (absorbing)
- 2 kilo ice cubes, enough to keep the temperature down to 4°C (41°F)
(+/- 2 to 4 kilo)
- Thermometer (Included)
- Kitchen sieve (Included)
- Pyramid bag 220mc (Included)
- Drainhose bag 220mc (Included)
- Crystal catching bag 70mc (Included)
(Optional 90mc and 38mc bags for extra qualities are available)

For info:
Pollinator Company, Amsterdam,
[t] +31-20-4708889,
[f] +31-20- 4715242
[e] info@pollinator.nl

Hybridization



Citralah

As a breeder of cannabis genetics, making hybrids is part of my life's work. I specialize in medicinal cannabis genetics. A hybrid is caused by the cross between two plants of different species, varieties or cultivars, or on occasions a different genera. Hybrids today are often more resistant than their parents.

When an atom hybridizes...This process of restructuring is known as hybridization. What I do is take two plants and genetically cross them to produce a new plant that has some of the characteristics of the original plants but also creates additional characteristics that are unique to it. The fact that new combinations can be formed shows the continuous nature of the process of speciation.

When working with cannabis you may have to produce hundreds of plants before you discover the winner you have been looking for, so patience is a virtue. Through the years I have had an amazing kind of inspiration to find the finest medicinal cannabis genetics this planet has to offer. It has been my health. Since 1984 I have had cancer of the tongue and cannabis has been my medicine of choice. Having it as my medicine is a powerful driving force.

When looking at different characteristics of cannabis plants, there are a few main things to look for. How much stem is in-between nodes, what the aroma is like, how much THC trichomes are present, how long the finishing time is, and last but not least the effect. Once several valuable species are acquired the crossing can begin. You need males and females. One male can be sufficient to impregnate hundreds of females. One of my newest crossings was to mix a G-13 Haze male to 11 of my favorite strains.

When I take seeds from these plants and sprout them I basically get 3 dominant phenotypes and 1 recessive phenotype. One will be like the father, one like the mother, one a combination of both and one a recessive phenotype that can bring earlier genetics back out to be seen.

Choosing which types of plants to use takes really knowing your plants well. Different strains have different traits. Once you have decided which traits you want to add to your new hybrid, you use one for the donor parent and one for the recipient parent. The male sending the new characteristics to the female. For this the two plants are mated or crossed and the progeny is screened for the desired trait. The progeny plants possessing the desired trait are then



Free Tibet with extra bud-shoot makes an excellent genetic contribution



G-13 male ready to mate



Lavender



Ripe Somango



White Willow

selected and crossed back to the recipient parent. This process is repeated until the desired plant type having all the characteristics of the recipient in addition to the trait being transferred is finally obtained. This exercise is known as backcrossing. Backcrossing involves both hybridization and selection.

Overall, the hallmark of selection lies in human ability to choose the best from a cluster of many.

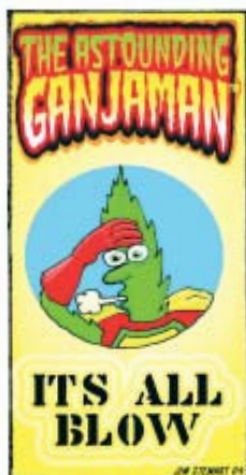
In his quest to find more variability, man started experimenting with hybridization of plants so as to achieve the perfect plant type. This process was actually the beginning of expedited evolution since it led to the formation of new plant types artificially or due to human intervention at a much faster pace than it would have happened in nature. For example the bread wheat that we eat today has taken about 500 years to evolve to its present form through human intervention. This form of wheat would have taken thousands of years to evolve had it been left to the natural evolution process.

In our modern world many things have accelerated. Today an item found on the other side of the planet can arrive at your door tomorrow. So it is with my seeds, they travel the globe. In this way many people besides me get to plant them and pick through different phenotypes, all of us looking for the best. For one person to do this would take many years, but with many people doing it and staying in touch via the internet the knowledge comes fast and with it new strains.

In my newest crossings between the G-13 Haze male (wanted to bring more of the sativa genetics into the mix) and Buddha's Sister, Somango, Somativa, White Willow, Lavender, Citralah, White Light, New York City Diesel, Rockbud, Reclining Buddha, and Free Tibet, I am finding some of the finest plants ever.

I love plants, plants of all kinds, they are my favorite life form, they are teachers, I surround myself with plants in my home, at least 100 different kinds, and cactuses.

With Love and Light...



Putting together your own feeding tub

For those of you who do not yet have, or who plan to use a feeding tub in the future, in this article I will be showing you how simple and effective making (and using) one can be.

By Bart B.

With the use of a feeding tub you can make up a huge amount of feed water in one go and adjust it to the pH and EC that is optimal for the medium you are using to grow on. If you have to choose between a pH meter and an EC meter, then you're best off buying the pH meter, since pH is far more important to get right. The EC only shows the strength of the nutrient solution you plan to give your plants, whereas the correct pH will ensure an optimal nutrient uptake by the plant. The ideal pH-value lies between 5.6 and 6.4. The EC only helps you give the correct dosage to give your plants, but by following the instructions on the nutrient bottle carefully, you will not end up not too far from the ideal EC.

If you do decide to regulate the pH, you have to keep it up for the whole growing cycle. If you don't, then the pH difference between the soil and your feed water may be too great, causing considerable shock to the plants. Do this often enough and your plants will start to display strange ailments.

Anyway, we were making a feeding tub, for use with growing a crop in earth.



1. The necessities: all you need to quickly and efficiently make a feeding tub is a well-calibrated pH-meter and EC-meter (the photo shows a combined pH-EC meter). Make sure you check the calibration every month. Calibration is done by dunking the meter in calibration fluid, a liquid with a known, fixed pH of, say, 7.0 and an EC value of 1.413. If the reading on your meter differs from either of these values then you need to adjust it by carefully turning the knob so that, for example your reading of 7.2 until it shows 7.0. Now your pH meter is calibrated (though with some meters you repeat the process on a standard liquid with a pH of 4.01). You do exactly the same for an EC meter. Be careful never to contaminate your calibration fluids. You will also need a measuring beaker, pH-growth and pH-bloom liquids and a

syringe with millimetre gradations (or a droplet syringe). And a tub, of course.



A feeding tub can be large or small, but the size you use will depend on the number of plants you have to feed and the number of days you want between re-fills of the tub. Thus a feeding tub can contain enough food for your plants for 1-4 days. If your tub is too small you'll get fewer days between tubs. Also to bear in mind is whether you plan to expand your operation in the future and expect more plants than you have now. If so, it's an idea to buy a bigger tub now and avoid having to buy a new one. Once you've got your chosen tub, fill it with water.



If you're using an EC meter and check the water, you will see that it already has a reasonable value, even though you have not yet added any nutrients. This is because of pollution in the mains water. If this EC reading is too high then you have to use a higher EC than stated on the nutrient bottle. A good EC to start with is 1.2, but if your water already reads 1.0, then you had best start with an EC of 1.4. You'll have to do a bit of calculation based on the quality of your mains water.



Take a measuring beaker and follow the instructions that are on the bottle label. Fill the beaker with the right dose - 400 ml to 200 litres of water, for example. By using a measuring beaker we will get to more or less the correct EC - far closer than haphazardly sloshing your nutrients in to the tub. Any other supplements such as root stimulator are added now too. We want to reach a starting EC of between 1.2 - 1.3. While slowly pouring the nutrient into the water keep checking your EC value on the meter. Towards the end, wait a minute or so and stir the solution well so that it's nicely mixed at the right EC value. Every feeding tub needs a circulation pump or suchlike so that the EC value is the same throughout.



Wait a few minutes until the EC value has stabilised and stays stable. If the value is too low add more nutrients. If it is too high, add more water. That's why you should never fill your tub to the brim or you will have no leeway to add more. The EC is now 1.29 for a good start.



Now that the EC value has been set we can take a look at the pH of the tub. This one has reached a pH of 6.6, having started at

7.5. Adding the nutrients lowered the pH of the water, but not enough. To get the pH to the desired level we need to add pH-growth or pH-bloom, which are acidic and will therefore bring down the pH. Just as with the nutrient, this works best by



using a measuring beaker to add the pH-acid. The first time always involves a bit of guess work, so be careful when you do it. Give the acid time to mix well in before adding a bit more, until you are in the vicinity of your required reading. If you're only a couple of points off it, then now is when the millimetre syringe comes in handy for carefully adding it drop by drop. This care will prevent a load of hassle by giving too much pH.



The pH is now acidified to a value of 5.8. This is an ideal value for making all nutrients available to the plants in great quantities. The more the pH rises or falls, the less available certain foodstuffs will be to the plant. Now it has to be said that when growing in soil, a pH value of 6.3 is also ideal. This is because at this pH, the soil life can really flourish and this too will be beneficial to the development, growth and blooming of the plants. You should check your pH and EC levels every day and adjust their levels when necessary!

Your feeding tub is now ready for use, but add a circulation pump and a warming element, because cannabis plants love lightly-warmed, nutrient-rich water. Installing an immersion pump will enable you to pump your feed water to any spot in your weed patch, which with your feeding tub can now be automatically kept well-fed and watered for several days in a row.

Here's wishing you all the success with your feeding tub!

How can I easily, cheaply and quickly press a small amount of hash?

By Ledfether (from the USA)

This method is geared towards simple, cheap and common materials. Although this method uses some heat, an appliance such as a blender or mixer is not needed, nor is any freezing or straining required. There is no wait for the product to dry out either. You can basically smoke it right away.

I use my \$35 Crystal Catcher sifter box from whiskeyfalls.com and my "SweatLeaf" grinder to separate the gland heads (KIF) from the vegetable matter. I work a batch of bud vigorously across the screen with a credit card (instead of sifting). I discarded the vegetable matter once done, but it surely has some potency left in it. Very dry, fluffy bud is my preference.

The real secret to my method is Parchment paper. Parchment paper is wonder-stuff for baking. It's very strong and durable, heat resistant and the fibers of the paper are very dense, and have a good "non-stick" quality. The Parchment paper I have is silicone coated for even better release.

Items needed:

- Pile of KIF, separated by your favorite screening method (dry)
- Parchment paper (look near wax paper, aluminum foil etc. in grocery stores)
- Water (enough to finger dip)
- Heat source (Heat softens/bursts the gland heads so they will congeal better) Any safe heat source will do (it's better to have a flat surface for the hand pressing). I used an iron for this in this example.
- Garlic press (Optional, for larger batches)

Hand pressed method:

Cut a piece of parchment paper approximately 6" square. Place your dry KIF in the center of the paper and carefully fold the paper around the KIF, creating as small of a compartment as possible for the KIF within the folded paper.

Place the folded KIF/paper on a heat source, with the most folded side facing up towards you.

Using your fingers or thumb (if you can handle the heat) or another object, press the folded KIF/paper firmly against the heat source. Hold the KIF against the heat source for a half of a minute to a minute, or when the heat transfers through to your fingers through the folded paper. You do not want to over heat the KIF, you just want to soften it and gel it a little - you may feel the KIF "give way" or otherwise move a little as the heat and pressure work on it.

Remove the KIF/paper from the heat, unfold carefully and carefully remove

the flattened KIF from the paper. Cut the "KIF wafer" (I use a razor blade) and stack the pieces on top of one another. Re-fold the paper and apply to the heat source again very briefly, just to warm it up a little and make it softer and more pliable.

Remove the KIF (now already becoming hash) and begin rolling carefully it between your fingers, trying not to loosen or separate any KIF powder from the pressed product (you'll see what I mean). Moisten your fingers with water to assist in the rolling/balling of the clump. You can press the clump onto any loose pieces left in the paper (like chewing gum picking up dust) and continue to wet your fingers a little to blend those bits in.

Once you have the ball of hash rolled to your liking, you can either let it set for a bit to evaporate any surface water remaining, or slice off a chunk and start smoking!

Garlic pressed hash:

Prepare your KIF as mentioned previously, but you will need quite a bit more to make this worthwhile.

Cut a piece of parchment paper (use your judgment and practice this a few times before trying it with your KIF) and carefully form it to the inside of the garlic press. You have to form it with your finger the best you can and then use the upper part of the press to finish forming the shape prior to adding the KIF.



Slowly close the press together, allowing the paper to be gently pulled in with the plunger part of the press.

The trick here is to be patient and avoid any tearing. The first time I tried it, I got it the first time; the next time I tried it, it took 3 tries to get it right.

Basically you are trying to form a paper cup!

Once you form a nice cup ready for the pressing, drop a few small drops of water in the cup and place your KIF in the paper lined garlic press (I use a business card to kind of funnel it in).

Did you know that PP (Power Plant) is often substituted with PP (Purple Power)? Although Power Plant is a bona fide indoor plant, Purple Power is generally grown in the outdoors. It is actually only the name (PP) that leads to this confusion, because the appearances of the two varieties are totally different!



Put a few more small drops of water on top of the KIF as well. You should add another layer of paper on top of the KIF to avoid having the KIF stick to the metal part of the plunger.

Slowly press the plunger into the press dragging the upper paper layer slowly in with it. Do all of this very slowly to allow the paper to slip where it wants to slip and avoid tears.

Once you have compressed the KIF with moderate squeeze pressure, place the garlic press with KIF in it against a heat source. Hold to the heat source until it is hot enough that you cannot not hold it with your bare hand (this takes longer to heat than hand pressing described earlier). Remove the press from the heat and allow to cool for a few minutes.

Carefully open the press and remove the paper/hash chunk. Carefully open paper and dislodge the hash wafer from it, being careful in case it didn't press perfectly.



You can use a little water on your fingers to "dress up" the wafer.

This method can also utilize multiple layers (pressing, adding more and pressing again) similar to OT's press instructions to create a thicker chunk. The parchment paper is an excellent "release material" to use when pressing multiple layer hash.

As you can see, an almost full garlic press cup of KIF can be pressed into a wafer a little bigger than a quarter. The wafer shown is about a gram of hash.

Did you know that you can protect your outdoor plants against slugs with small pots of beer? Slugs are very partial to a drop of the old brown stuff! When we hollow out a small depression in the soil around the plants and then stick a small glass pot into this with beer in it, the slugs will make their way in the evening hours towards it, fall in and drown (they can't get out again). This method works fantastically, and has already seen many thousands of slugs dispatched, never to hassle the outdoor grower again.

Did you know that Afghan varieties are often very easy to recognise? Afghan plants are often decked out with very deep green leaves which give off an equally recognisable heavy odour.

The experiences of an amateur grower

Angry weather gods

By Bart B.

It's some months later and my fingers are beginning to itch again. If you remember from the previous issue of Soft Secrets, I had not had a successful crop because most of my plants died off of an excess of nitrogen or had proved to be male. As everyone knows, only the ladies can provide a good yield.

Rain, rain and more rain is a good summary of the month of September 2001. As I mentioned in the previous Soft Secrets, I had raised four lovely K2s outside with much love through spring and summer. Although the K2 is not an outdoor variety they had done marvellously in that far from poor weather. They had grown like crazy and towards the end of the summer I had myself four plants of a meter high and the same across. Real beauties with a strong stem and dark green leaf cover. They were given several litres of feed water each day, and once every so often given a splash of phytomin to help promote extra chlorophyll production.

They had developed many side branches on which I hoped a large number of fat buds would soon develop. Nothing could be further from the truth. This had been shaping up to be my first outdoor planting that had gone without problems, thanks to my previous experience with indoor growing. Halfway through August the K2s began to bloom and everything appeared rosy-tinted and promising, because it was still a warm and sunny Summer. But by the beginning of September the weather gods had other ideas. The floodgates were opened and it began to rain stair rods. At first I thought it was just a short bad spell, because we usually enjoy a pretty soft end of the summer.

But when no end was in sight two weeks later, I began to fear the worst. For many outdoor growers, September 2001 was a black month. Many lost their crop to mould or had to harvest too early. Personally, I did my best to keep the plants out of the rain and thereby reduce the risk of moulds. After it had rained for nearly a month, fate finally dealt me the hand I'd been expecting. Mould ripped through my crop and there was nothing left to harvest but some piddly little buds that had managed to develop under the dark, rainy heavens. I can say I was amazed and happy that even they had managed that and had survived even this long. A top harvest this was not going to be, but also not a disaster. From something good, came something good.

Problem

The thing about growing is you're always learning on the job, with much falling down and getting back on the horse. The best growers, I reckon, are those who had made plenty of mistakes and had the chance to learn from them - better at any rate than growers who by luck or green fingers have never put a foot wrong. You have to be able to solve problems as and when they arise. So I had a problem: the sickly, under-developed little buds had to be cut, then trimmed and that was going to long, tedious and fiddly work - and I didn't much fancy it. Everyone who has had a harvest knows that it is no fun at all gathering and preparing loads of all-but-weightless buds. But thanks to what I had read and my previous experience indoors I had found a neat solution to my problem. Via the Internet I had bought myself some ice-o-lator bags from an online grow shop. With these bags I could make water hash, the problem would be solved: I'd just

make water hash out of all those outdoor plants because I had no desire to go trimming them all. That would be a soul destroying task. The buds in the meantime were not very large, but they did have plenty of THC hairs on them. A week after I had placed my order, the bags arrived. So handy, that Internet.

Water hash

Water hash.....I harvested all my outdoor plants and let everything dry. Trimming is not necessary, though you can do it. Normally we use only the better trim waste full with hairs to make water hash. But given that I had no intention of trimming all those little buds I simply let them dry thoroughly and then pulled them apart so that the hairs were fully exposed. This is necessary so that they can be more easily removed and thereby produce a better yield. What's nice about water hash is that when you have a disappointing (outdoor) harvest you have a huge amount of leaf material from which to make a superior quality hash.

Another method is to sieve the dried material and make skuff out of it, but the machine you need to do this is far too expensive if you're not going to use it a lot. In my opinion it is far nicer, cheaper and easier to make water hash. You only need the ice-o-lator bags, ice cubes and a big (20-25 litre) bucket and a mixer. The ice-o-lator is simply two bags with a sieve between them. One bag hold the leaves in it but lets the crystals through it. The American version of this is the bubble bag, but the principle is the same; it just uses more sieves, so you get various qualities of hash. So I let the buds and leaves dry out for a few days so that they were not damp but not powder dry either and then I stuffed them in a bag and stuck this in the freezer for a night.

Leaf material

About the leaf material, trim waste or buds. Personally I generally let the leaf material dry out for a couple of days to make sure it ends up dry but not bone dry. You can make water hash from fresh (wet) leaves or dry leaves, like one used to make skuff. If you use fresh leaves the water hash is of very high quality because there is very little impurity in it but then the yield is not very high. What's nice about using fresh leaves is that within a few hours of harvesting, a good or a bad crop you've got a good, smokable hash, and



The harvest in close-up



The pouring in



Trim waste

while your buds are drying you can already be enjoying your own shit. if you let the leaves dry right out then you'll end up with more, but of a lesser quality. I choose the golden middle line. Let the leaves dry for a few days so that they're half way dry - not too dry - and then you

get a good yield and a good quality smoke.

DIY

The next day I took my 20-25 litre bucket and filled it with iced water. This is very

important - the water must be really cold because the temperature issue is crucial. It must be kept as near to zero degrees as possible, as it is the cold that will make the sticky crystals fall off more easily. I set several bottles filled with water in the deep freeze for a few hours before I begin, just to make sure it is really cold. Then I take the frozen leaf material prepared the day before and put it in the iced water, then cover this with ice cubes. Put a lid on the bucket, punch a hole through this to let the mixer through, and start to mix. Mix for 15 minutes, then let it all stand for five minutes for the crystals to gently settle, then mix for another 15 minutes, wait five minutes...Thanks to the friction the crystals come loose and fall through the first bag to be caught by the second bag. After an hour and a half, stop and remove the first bag with the leaf material in it. Make well sure that no leaves fall through into the mass of crystals, and if there are crystals adhering to the bottom of the sieve bag, wash them off above the bucket and not above the sink!. Now you should see a golden brown-to-green coloured water, and that's a good sign. If it is green that's a sign that you have probably mixed for too long and have stirred the chlorophyll into the water. But this is not a problem and the colour will disappear as the water hash dries out. Then finally we remove the second bag full of crystals from the bucket and let the water drain from it slowly. This can take a while depending on how full the bag is. If you gently wave the bag back and forth, this will speed things up as the crystals will move about and let the water through more easily.

What you see once all the water is out is pure gold; top quality hash that's somewhere between a light blonde-to-white and dark brown-black colour. It is a lovely feeling to know you've made this yourself and it's good. It's a bit like being a gold prospector with a sieve who suddenly sees gold nuggets. Then take some kitchen roll and press the rest of the moisture out of the mass. The result is then a reasonably dry lump of hash. You can knead this ball of hash more to make it into the shape you want, or you can leave it in the freezer until all the water left in it has risen to the top and can be just wiped off. This water hash is now ready for use, and only a few hours after harvesting. Like I said, pure gold!

Quality

I'm no hash expert but the water hash I made was absolutely the best shit I have ever smoked. The best taste and definitely the most effect. I had never, ever smoked any shit that had such a strong high. Really an overwhelmingly clean high, rather than a stoned, wasted high. We're talking seriously strong stuff and not to be underestimated. I smoked my first water hash with a mate who at that moment also had a few plants. I laid my fresh water hash above a 400w bulb for a minute to dry it and then we smoked it. We were both astounded as neither of us had had water hash before and so had no idea that it was of such high quality. We were soon enjoying being as high as kites under its influence.

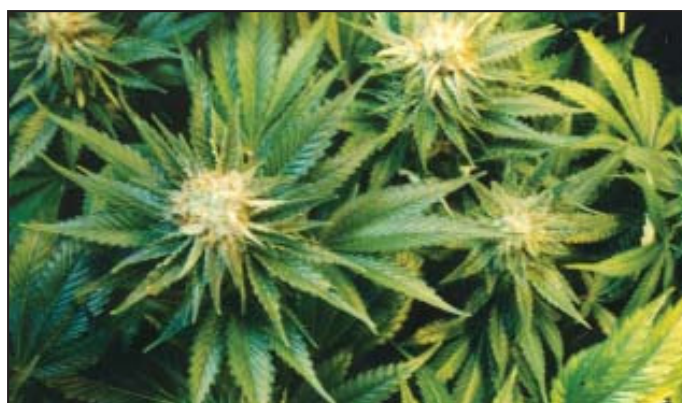
We both generally prefer to smoke weed because hash is usually too light, but this water hash was precisely the opposite.



Mixing



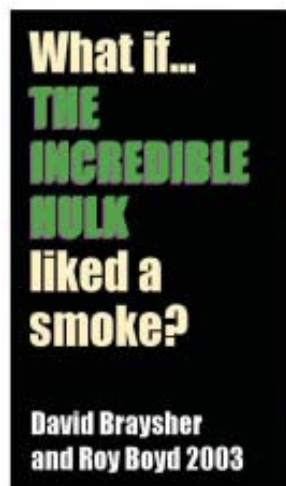
Hash plateau

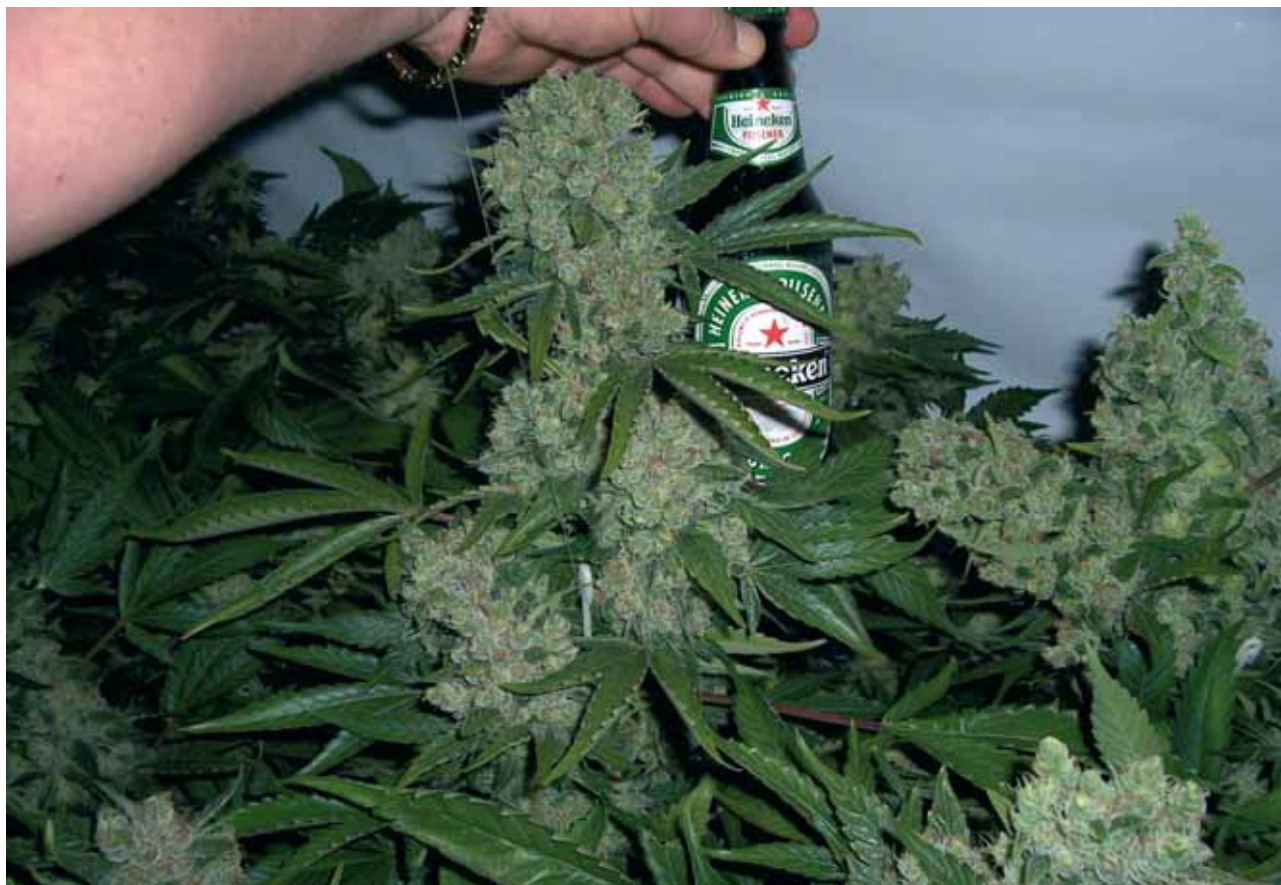


After such a smoke you don't want or need to smoke weed. Other hashish I had smoked only gave me a light high. I know that water hash can be bought for a high price in the coffee shops of Holland. Making it myself was obviously far nicer. The yield depends on how much you put in the bag, and you cannot expect a decent yield if there are too few crystals on the leaf material. If you get 10% of what you put in then you're doing pretty good. Anything above that is excellent, anything under that leaves room for improvement. So you can see, setbacks do not necessarily have to be a bad thing. Although I would still prefer to have had a good crop of outdoor bud, I could at

least console myself with a large quantity of good quality water hash. If you ever find yourself in a similar position, first think what you might be able to salvage from the situation. For example, if your plant breaks its stem during the flowering phase you can strip it of its vegetation rather than just throw it away. In most cases not everything will be lost and it will be a learning experience for the future. Learn from mistakes. And what do I have in prospect? More on this next time...

Any grow related questions? Contact me at bartb@ganja.com





Victor and his love of “big pots” *Part 6*

Text Smiley Grass/Photos by André

Each time in this series for the organic grower, a different weed farmer from the Netherlands is put under the spotlight. In this issue we get to take a stroll around the kitchen of Victor, an antique dealer from the South of the country and a great plant lover. Victor really does love his plants and pampers them from beginning to end, when they thank him by producing nearly three pounds (1.5 kg) of smoke-ready buds. How does Victor do it?

“First of all, I give them all the space they need by using pretty big pots. My pots have a diameter of around 40 centimetres and a volume of nearly 25 litres. With a bigger pot volume I get bigger plants and a better yield. And I am less vulnerable to the law because I have fewer plants at home: 18 pots with 28 plants, in place of 60 or more, all packed in to about two square metres. I generally get about the same or more off them, and they take a lot less work. Large pots like this are just easier to work with.

Over the years I have re-built my attic eight times already; each time I try something a bit different. I had always been busy with smaller pots, as well as 7.5 litre ones. This was until one time I came across a couple of these large pots. They had been sitting in my shed for years and decided to finally give them a try out. I tried all kinds of mixes; everything just chucked in together. Blood meal, fish meal – you name it. I came to the conclusion that if I was going to work with such big pots, I was best off using a simple organic compost with an NPK of 7-7-5, from which I reckoned I could get a harvest of at least 30 grams per plant. Plus I would only have to add water! Once or twice a week, no more.

And at that moment I went further with my experimentation. I chucked all kinds of fertilizers and food supplements in and came up with better and better results. This was partly down to articles in Highlife and Soft Secrets.

All my knowledge about growing in 24-litre pots I had to gather for myself. There

is almost no-one in the Netherlands who could tell me how best to go about it. I have 16 years’ experience, because I started growing outdoors back when I still lived with my mother. If I’m going to work with something, then first I want to figure it out for myself. I did have the advantage that a friend was working with the same pots, and sometimes with the same plant. But we had very different spaces, ventilation, lamps and light and then you might as well be talking about a different plant. But you do learn a hell of a lot.

As well as this I had a special diary, my memory support. Everything that I did, I wrote up in this. The longer I grow, the more I can build up this external memory. Thanks to this, I know that if things are going to go wrong, it will be

I’m an organic grower; I just don’t get the point of hydro. A plant belongs in a nice tub filled with soil. To me, that’s what a plant is all about.

on or around the 50th day. The block that I have at the moment is the best I have ever played with. And that is always what I’m striving for, after all.

Mothers

My mother plants are also raised in big pots, in *really* big pots. I have them stood in 60-litre pots, round at a friend of mine’s place. He’s not active in the weed world in any other way, so he remains the right side of the law and I can be sure of always having access to good mothers. I help with their maintenance, he gets his smokeables

for a reasonable price – so it all works out good for both of us. I find in the grow scene you usually get sold clones with spint...

A good mother plant is very important. I have three of them, of which two are really big – at least two metres tall. Not like they mostly do these days – those little bonsai shrubs, but adult mothers. They give grown up clones: lovely, strong and woody.

As for nutrients, with the mothers we use a very simple feed. A basic Terra Vega or a bottle of cheap nutrient from the ‘Boerenbond’ (Farmers’ Union – ed.), with an NPK of 7-7-14. Terra Vega is for a grow medium a really good feed. There’s everything in it. It’s shite for blooming, but for growth it’s good stuff.

The mother plants are just stood under ordinary ‘blue’ Osram Agro glow burners. For the rest, I only have one task and that is discipline. With a plant like this, just as if you had a baby, you have to change it in good time and look after it when it needs it. If you just stick a plant in a pot and never pay it any attention, nothing’s going to come of it. Even a dog is let out when it wants to go, right?

Oasis

Often I put the newly rooted clones in a pot of earth on a windowsill for the first

five weeks. Then they build up a nice natural base. And the older the clones are before they go under the lamps the better. It doesn’t cost you a dime to put them on a windowsill. First I let them become a little bit mature. Do as little as possible to your clones; just let them be.

But I begin with medium blocks from ‘Oasis’. They’re ideal for growing in soil; I’ve never had such great clones as in the last few years. Such a fresh green. I take a cutting from the mother plant, nice and short, under the internodes, and shove it with some cloning powder into the Oasis block. It’s the same soft stuff as you use in Christmas ornaments and flower arrangements, a sort of plastic. You can buy it at the florists or at the garden centre. I know for sure that it is 100% sterile and it is pH-neutral. So if I pour some mains water over it, it just takes on the pH of the water company. I acidify it down to 6.5 and keep the temperature of the grow room at a minimum of 20 degrees. Then within three weeks it has taken root without me having to do anything. Except keep it wet of course.

The stuff has a perfect absorbency. If you plonk the clone directly in the middle, the young sprout can take up every last drop of water. If you stick the clone in too deep then it dries out because the water doesn’t reach the beginning roots. The medium block dries out from the outside in.

In the grow tray I restrict the fresh air for the first two days. The air moisture inside rises to near enough 100%. On the third and fourth days, I open the air vents, and on the fifth day I remove the tray’s lid completely. Not a clone has failed! I never keep them longer than this in such a humid regime; I want my clones to stay healthy. In the worst case, you get a mould or infection in your plants, and you lose up to half of them! That is the only thing you have to watch out very carefully for when using oasis: the clones have to have a nice tight fit. If air gets in around them, you get mould.

How do most clones get screwed up? You take a tray with rock wool clones and by accident when watering it you give it a small shock. They come a bit loose and so air can get in to them. In principle, 25% of the clones are already screwed. With this stuff: you prick a small hole with a cocktail stick, you pop the clone in and it’s wedged in there firm as anything is. Just to be sure, I take a pen and give a small push next to the clone’s base and then the cutting is 100% sealed off from the outside air.

Re-potting

The clones never take root uniformly of course; the one always eats and drinks better than the other. I do re-pot them when I have to, but only when it’s necessary to minimise the stress caused them. That’s why I keep a close eye on them. It is handy to let them germinate on a glass plate. Then you only have to lift them up to see if the roots are visible yet or not. The roots will just as easily shoot into other blocks if you don’t keep an eye on them.

As soon as they’ve got roots, I pot them into soil. To me, that’s a hundred times

better than putting the clone directly into soil. With little Jiffy pots it takes about three weeks before they start to bloom. With my method, they sometimes do that within 10 days!

When I'm re-potting, I just leave the oasis blocks around them. Such a small block can hold a good 30 millilitres of water, which is a heck of a lot. That is why for the first three or four days there is no need to water them. The clone has enough power to keep going. When you're re-potting from rock wool to soil, the rock wool sucks the clone completely dry. Then you can be dripping water on it ten times a day.

From below

I only ever take off the lowest two internodes (the growth that comes out of the point where the leaf meets the stem); the rest I leave alone. And I don't top them, because then you get a better yield. Once I can see that the clones have strong roots, they are all switched over to soil. I mean, you have to keep the plant natural. I prefer to stand in a good pair of shoes, and it is just the same for a plant. They also prefer to be stood in a pot of good soil. That's how you have to look at things, you have to put yourself in the place of the plant. The better they feel, the less they still have to get used to warmth and cold. That is also really important. You have to cause as little stress to young plants as you can. You just have to try and do what's good for the plant, and that takes a lot of discipline.

I choose to let my plants bloom fully. I'm a bloomer, and then you can not have too much fuss around. It's a real factory having and maintaining a grow space like this; you have to rebuild, get new raw materials; sometimes you have to do this, you suddenly have to that ... meanwhile I have a whole day's work, but my wife knows the score.

Most people forget one thing: that plants reach a massive peak in root growth activity, which starts to tail off again two weeks after blooming begins. This is something you want to try and influence. That's why I water mine during this extended growth spurt both from above and from below. From above I give them neutral water and from beneath, in the dish under the pot, water with a little splash of Roots (from Bionova). In this way I give plants an optimal stimulation. I do this until two weeks after the bloom begins. After that I let all the roots that have grown into the dish die off again.

From underneath I also sometimes mix in a little potash, and that also stimulates the root growth a bit. Pure potash - you only need to put two millilitres into ten litres of water. I give it with a plant syringe. The plant already has so much phosphorus, nitrogen and calcium in the pot that I have no need to give them any more. But pure potash and Roots make the roots go off and try to find more. And the more roots, the more nutrient they can then pump back upwards, and the more buds you end up with.

Blooming

At the bottom of my pots I always toss in a layer of clay granules, so that they can't

dry out from the bottom. Once I see roots poking out from there then I have an idea how things are going. That's 35 bloody centimetres that they've got to travel! If I can already see them down below after a week, then I start to influence them. Of course, you should not let them poke out of the pot. Otherwise, when you come to turn the pot, you'll pinch the roots and then you've got damage. That will cost the plant energy to fix its wounds. Only once they start to bloom do I let the lowest roots die off. For this I use a catalyst and BN-enzyme, which closes the roots off nicely. This allows a section of root to die off and yet not lead to an increased risk of fungal infection. Once the whole growing cycle has been completed, I simply rake through the clay granules, clean them off and start to use them again straight away.

After a minimum of two and a maximum of three weeks, I start the plants off with their blooming. That's pushing things a bit. But by then, they are well-rooted clones and they do not need any more getting used to lamps. Within a day they've caught on. And then you have to keep them gorging. If it gets dried out, then it won't be able to eat. That's why I always make sure that it is never too dry, but at the same time, never too wet. You also have to take care not to make it addicted. Hemp plants have an inclination to fall into a pattern. If you, for example, give them water every two days, then that's what they come to crave. That's why from time to time I give them water only every three days, or even every four days. And why one time I'll give them 700 millilitres, and another time 800 millilitres or maybe even a litre and a half. I keep track of all this on my calendar.

Love of the green

Once in a while I'll move them. Then I think: 'things are going too well for you, matey!' Then he's shifted over to the other side. The plants not doing quite so well, I move in to the middle, and in this way I'm constantly moving them around. The really big ones, the whoppers, I mostly keep on the outer edge. They have just got to keep drinking. If I feel they're not drinking enough, then there is something wrong with the housekeeping. Then I give her a bit of BN-enzyme from Bionova. I have tried everything in my growing life, so all my kitchen cupboards are filled up. Sometimes I get a good harvest, yet I still feel there could have been more. If I call Bionova, I get good information straight away, I don't need to go in person. They give out their information totally freely. For example, when I wanted to know something about NPK. With others, you have to physically drop by, to calculate the conversion formula. Bionova gives me everything I need to know. If outsiders can substantiate for me how things are going, then the going is probably good.

It all begins with a good base, then you've already got half your harvest. The more light, the more air, and how much more nutrients you can give them, the higher your yield is going to be. These are just laws of nature. I do the same for my house plants. They had never flowered, but now they are flowering! You can just imagine what kind of a soil that is! They get all the left-overs from all my

nutrients. I have a test plant, a lab rat, and if this fails, then I know for sure that I'm doing something wrong. I try to compare everything. What are the similarities between my house plants and the hemp plants? I'd also like to take clones from my conifers, on a small scale. You just have to have green fingers. It's a feeling.

I'm an organic grower; I just don't get the point of hydro. A plant belongs in a nice tub filled with soil. To me, that's what a plant is all about. No rock wool, even though the whole of the Netherlands is filled with it. Tomato green houses, cucumber cloches - that's just selling balls filled with water. You have to enjoy handling it. Just so long as you give them water regularly, then you've got half your harvest already.

Love too

The other week I met this young guy who had just started out growing and I gave him three of my plants. If it's only a couple or three I'm happy to help out. When it gets to be more than that, then I can't really be bothered. Anyway, he has a little smart shop, and I came in and he just tosses the box with the plants in over into a corner. So I totally lost my rag! I go to all the trouble to make sure he gets a few great condition plants and the geezer breaks their bloody necks without so much as a thought! I just can't stand that sort of

behaviour. Keep the fuck off my plants! If someone's invited in to my grow room, it's just the same. I'm always looking out for my plants; I'm just very careful and even touch the leaves as little as possible.

Floor heating

I also use a heated floor, but that that comes in the next phase. Only my clones are warmed where they stand. I just crank it up to 25 degrees where my plants are, and I have a hugely thick layer of insulating material under them. After there had been a raid on my place, the same evening I had the thought: shall I put things back as they were? I thought, you know what: I sat for ages getting pissed off at the floor, the eight centimetre-thick doors. I'd set up a complete safari park! Now there's just a thick layer of insulation and a layer of plastic. I don't think a better insulated floor than mine even exists. The thickest factor that there is, that's underneath. I've sent away for documentation on all the floor heating systems. I've got all the folders and books at home. I have here a folder from a Chinese company: do you need to drive a buggy between your plants? The grow world is doing absolutely nothing, I'll tell you! You have to search far and wide for the cool stuff, not just in the Netherlands. There can't be more than the odd hemp farmer who really needs to be able to drive a buggy. Is it really necessary?"



They have just got to keep drinking. If I feel they're not drinking enough, then there is something wrong with the housekeeping. Then I give her a bit of BN-enzyme from Bionova.



The genetics of Paradise Seeds *Part 3*

In each edition of this series for the organic grower, a different Dutch cannabis farmer is put under the spotlight. In this third part we are offered a glimpse into the kitchen of Luc from Paradise Seeds, a 40-year-old cannabis plant breeder and seed trader. As long as they have been well cultivated, his varieties easily achieve THC percentages of 20% and more, and henceforth they have won many international cannabis cups. What makes Luc's seeds so special?

Text: Smiley Grass

Photos: Smiley Grass and Paradise Seeds

Luc: As a plant breeder, I think it would be interesting if Dutch growers would grow more frequently from seed. Then you'd get a bit more variety in the coffee shops and the end consumer would be astonished at the tasty varieties that have escaped his notice. The market is, certainly at a local level, often saturated with one and the same product in the Netherlands. In one province it is the White Widows, in another the whole K2-family, in this town Santa Maria and in another Power Plant or Skunk. Thanks to this the quality of the plants slowly but surely slides away towards disappointment, because nearly everyone uses clones. Of course, it does save time using clones for growing, but it is a pity that a wider range of varieties is not available. Just as with wine and beer there is much variety among the weeds and this is very rarely represented into the run-of-the-mill coffee shop. Here you tend to get three or four similar varieties, the same ones as at the neighbour's coffee shop over the road. I do not wish to suggest that they are poor varieties, but a couple of them always end up dominating the market and the choice available to the customer is limited as a result. Of course, there are many other decent varieties, ones that are very tasty and unique, but just not as well known to the general weed public, such as Sensi Star and Nebula, or Sheherazade and Belladonna. It would be a positive development if these varieties were also available in the coffee shops. I can recommend to everyone that once in a while they choose something new from the huge variety that are available as seeds. See our website for example:

www.paradise-seeds.com

The majority of the seed on the market yields both male and female plants. You can allow your favourite plant to develop seeds that you can then sow the following year. It's a fun thing to experiment with.

A good alternative to using clones is to use female seed. The development of female seeds has not turned out as well as was once anticipated, but I have managed to develop a method that gives good female seeds. Sadly, there are also so-called female seeds on the market that really also have a part male bloom to them. This is obviously not something any grower sits around dreaming of. Some people swear that it is female seed they are selling, but all too often it turns out that they were actually hermaphrodites. It is just not very easy to get hold of real female only seeds. Many people are experimenting on it; they create stress, play around with light and nutrients. All tricks that will not yield any good results.

A female fertilises a female...

You can also set about the problem in a different way. There are a number of companies busy with it, including



Luc at work in one of his storage rooms

ourselves. We are managing to bring reliable, female seed of a very good quality onto the market. How exactly the process works is too complicated, and for most people / readers also too uninteresting, to be gone into here. What's most important is that it works! What I can say is that we don't do it with hormones or with acids, and we also don't use stress. The weed plant has two sexes, male and female. A female plant put under stress that remains female is 100 % female, with our method the female plants also produce male flowers and male pollen, which is used for fertilising the other female plants.

Star and the more Sativa-ish Nebula, to win the 2004 and 2005 Highlife Cannabis Cups in their respective categories.

As a developer you really have to remain aware that growers want plants that do not take too long to bloom. For a really pure Haze that takes 15, sometimes 16 weeks and sometimes even longer than that. I have searched far and wide for a shorter-blooming type that manages to maintain the characteristics of Haze and yet takes on the bloom time of an Indica, together in one plant. This dream cannot be perfectly realised, but it can be approached to some

The majority of the seed on the market yields both male and female plants. You can allow your favourite plant to develop seeds that you can then sow the following year. It's a fun thing to experiment with.

In this method we're talking about female-made seed. A female fertilises a female and so produces female-made seed that generates 100% female plants.

I am happy that consumers are discovering and valuing the difference between the Indica and the Sativa varieties. Thanks to the positive change in tastes, it was possible for us with our Indica-ish Sensi

extent, and then the bloom period last a mere 10 – 12 weeks. The Indica variety can be harvested around the 50 day mark, and it is this that most growers will choose by preference. They choose the shorter blooming time, certainly if there is money is being made and maybe they are trying to get two harvests in one year. As a rule of thumb, a Sativa-dominant variety will yield more as a compensation for the longer

bloom period. That is certainly the case for varieties that lean more towards the Sativa such as Nebula and Swiss Bliss, which are both very potent and have high yields, as well as tasting remarkably good.

More than 20% THC...

Paradise Seeds varieties can contain high percentages of THC. Certainly our Sensi Star, Sheherazade and Swiss Bliss are very potent plants with more than 20% THC, providing they have been well grown, obviously, because that is where it all stands or falls. I personally prefer to grow organically, as this yields - in my opinion - the best weed. This is something best achieved on soil. If you have created a good mix, then every nutrient the plant needs is there in abundance, and it will also give your weed the fullest, most natural taste. A good soil can be mixed up yourself mixing blood meal, bone meal, fish meal, guano etc. in the soil before you plant your seedlings. These are rich in the right nutrients. These days I am not so busy with growing, but more oriented towards the development of wonderful new varieties, and I do my best to make these available to people as seed.

You should not expect that after doing a couple of crosses you have created your own new variety. Doing this will produce something similar to "Four Way", a nice plant that can go in four directions, but which you as a grower do not have much to latch on to. You have to be selective in your crossings, and it can take a whole load of generations before you can talk of a new variety.

After a few generations your weed will be more stable, you pick out the best seeds, the most potent, those that taste the best... Then you back-cross these and the more times you do this the more stable and the more the characteristics that you want to keep become more noticeable. Those that are not welcome, you try and select out. Selection on top of selection. In doing this, the plant will lose some of its power thanks to the problem of inbreeding – something you may well have heard of. This is no real biggie in the world of seed breeding, because it does not happen so very quickly. There is power in an F1! These are varieties that you develop from stable sorts. By combining these together, the 'fresh blood' can be used to inject some favourite genetic material to create powerful new varieties!

You can for example combine native varieties, these are no so well represented these days. If you combine these together you come up with something new, and perhaps something lovely. Natives are the original varieties from nature growing in Nepal, in the valleys of India, Colombia, Pakistan and Mexico. This is where the 'natural' adults have evolved and where they have developed for generations and so they are well suited therefore to the environment and climate in their respective homes.

In the '60s and '70s people began to smuggle the original seed out on a small scale. Hippies and weed smugglers brought these genetically pure natives home with them and then began to experiment and further develop them. In the beginning this was mostly in the United States, especially in California.

In 1984 I began smoking and growing. Since then my life has changed. The first time that I smoked I found it so wonderful that I immediately wanted to get hold of my own plants. The first seedlings I got hold of I planted in my parents' back garden, of course. Now that's a long time back!

At the end of the '80s, I started to save my own seed. Around the same time I began my very first small weed growing set-up, in an Amsterdam squat. The "coffee shop" phenomenon had not yet taken off in a really big way and there were still not that many coffee shops in Amsterdam. At first we only had a local neighbourhood coffee shop, where actually the goods that were passed over the counter were not of any real quality. This situation changed because we were growing something new and our varieties were seized upon eagerly. The we started up *The Weed Brothers*, a group of friends who had a common interest in tasty weed, and who were keen to develop their own varieties and produce seeds. The local coffee shop was very happy with the quality we were producing. But the first coffee shop in the centre of Amsterdam - a "foreign" shop, run by two Canadians - was the first outlet for our seeds. Lots of Americans came here too and also wanted to get their hands on the seeds that produced this ridiculously good weed from this little country of clogs and tulips that was legally sold in these so-called coffee shops. So instead of taking home tulip bulbs, these first drugs tourists took our seeds back home to the US of A.

So I've been busy now for more than 15 years with these plants, and up until a short while ago I still had some seeds from a primal variety obtained from a far-flung country. These we now want to carry out some quality tests on and see if they still have any potency with which to cross breed and further develop. That's the idea anyway. There are always people sending us seeds; from the Paraguayan bush, out of Africa and from Thailand, or more recently developed varieties from Canada or America from other breeders.

It's just a wee mite...

In order to successfully raise a seed you are best off letting it germinate in the dark at about 20 degrees. You need to keep the growing medium moist; on cotton wool wads or directly in the soil is the easiest. Use lightly- or un-fertilised soil and don't go adding any other nutrients to begin with, as you might be used to when growing from clones. It's just a wee mite, and you have to be gentle with it. In the beginning, water on its own will be sufficient, but pretty quickly the seedling will be ready for its first, light feed. Just make sure that the EC value does not rise above 0.5 at the beginning.

Allowing your seeds to germinate in rock wool is a bit more hassle because sometimes it presents problems with moisture regulation, so pay attention to this if you are planning to use rock wool. There are many, many growers who do let their seeds germinate in rock wool who have the technique off pat, but there's more to worry about than just moisture. Rock wool is basic, and has a pH of about 8- 8.5, and in order to lower



The clone room from Paradise Seeds



The room were the seed is being produced



Smells like Paradise: a room for Mothers



Paradise's Swiss set-up for selective breeding

the pH they have to be soaked in water with a pH of 5.5 in order to bring the pH of the wool block back down to about 6-6.5.

Once the seeds have germinated, a good rule of thumb is to give them about 1/8 of the normal recommended dose of hydro nutrition for weed plants in the growth phase. After a week this can be raised to about a quarter dose, and after two or three weeks up this again to about half the recommended dose. Only after four weeks should you start feeding them the full dose, but often this is not necessary because the plants will already be moving on to bloom feed. For the bloom phase you are best off starting them on half the recommended dose, and gradually over the course of three to four days build up to the full dose. Further still, there is a difference between the Indicas and Sativas. Young Indica plants generally need more nutrient than the Sativas because they grow more vigorously at the beginning. Sativas grow harder later on in their cycle, and only then need extra nutrient.

The Swiss Connection

Paradise Seeds officially began – however crazy this might sound – thanks to a police visit in 1994 that one of the seed production rooms in the Netherlands received. I had some fine plants growing there, fully in seed. When the court case came around, I was apparently a seed producer and breeder, and I was released. So now we could continue with our seed production with the best wishes of the judge!

Sadly, in 1999 the law changed. It had come to the attention of the authorities that large commercial growers were

raising a single male plant among their crops to technically be seed producers too, and a number of big police busts had come to nothing as a result. That is most probably the reason why a ban was introduced in the Netherlands on seed production. So from one moment to the next we went from legality to breaking the law. No more seed could be legally produced from then on.

I went in search of possibilities abroad.... In Switzerland, weed could be legally grown and there was no ban on seed production, so we decided to pack up and move to the that wonderful and (then) still legal, weed-friendly country in the Alps. There I was able to carry on my research and my breeding programme. Sadly, there too the law was changed,

essential oils, and a lot of hemp seed oil was produced too. The quality and taste of these oils is both really good and really healthy too! There is constant research being undertaken into how this can be improved even more. But of course there are also plenty of growers who used the favourable weed laws to produce cannabis for consumption. Swiss justice has in the meantime got wind of this, and now, if you're caught growing cannabis there is a thorough investigation as to whether you are indeed in possession of the legal permits. This was less the case in the past and Switzerland can no longer be called the weed paradise of Europe.

So where can you go now if you still want to experiment on a large scale? In Poland, despite all the cowboy stories

A female plant put under stress that remains female is 100 % female, with our method the female plants also produce male flowers and male pollen, which is used for fertilising the other female plants

in 2002 and sharpened up. We ended up having a bit of a run in with the strong arm of the law. We only just got off, but it signalled the end of our very professionally set-up gardening adventure.

The production of weed was legal, and it was sold in small, pungent bags as an aromatherapy product. It was still illegal to consume, but it was legal to produce. This created a lot of possibilities for people who on the one hand worked legally and on the other sold the product illegally. Switzerland would appear to be more liberal than the Netherlands, but looks can be deceiving. A lot of weed was grown for the cosmetics industry and for

about huge greenhouses managed by corrupt mayors and police churning out weed night and day, there are very strong punishments. Belize would appear to be a good country. From there you can ship seeds and buds all over world. It is a continuous job to be on the lookout for new possibilities and reflect once more upon how things sit in the ever-changing legal situation. It's a question of finding a country with favourable laws, preferably in Europe, where we can produce seeds legally. In the Netherlands you can sell and import seeds, so happily there are still possibilities and we continue to provisionally carry on doing what we do best as we endeavour to keep making people happy with our seeds!

Bio Henkie and mother "earth" *Part 4* By Smiley Grass

In each edition of this series for the organic grower, a different grower from Holland is put under the spotlight. This time around it is Bio Henkie, one of the very first growing pioneers from the early days. This dyed-in-the-wool weed-lover based in North Holland really has growing in the blood. His father was a market gardener, and Bio Henkie is not averse to turning his hand to growing tomatoes and green peppers, something he reckons makes a good skills base for also getting good results from the cannabis plant.



Bio Henkie loosening the peat

Bio Henkie: "I began more than 20 years ago with organic farming in my father's greenhouse, in the Zuiderakerpolder, one of the oldest horticultural districts in the Amsterdam district. The Olympic village was supposed to have been built there and eventually they did build a new housing project on this once valuable greenhouse area. Nowadays it's called Nieuw Sloten, out on the western edge of the city.

In this greenhouse of my dad's there was a bit of everything grown: from roses to grapes and tomatoes, various varieties of pepper from all over the world. It started out as something of a hobby that quickly got out of hand. I had got to know Wernard, from the former Positronics, and I began to experiment a bit in the greenhouse. We gradually got more and more professional. First with plants and later with compost. I began to collect addresses of companies that made organic fertilisers, and after a while I also set up in business as one of the first to start importing these in to the Netherlands.

I owe a lot to a good friend of mine, Theo Grendt, who had all kinds of knowledge about organic farming that he shared with me. He later wrote a book on the subject, *De Biologische Aanpak* (The Organic Approach). Theo originally could not get his compost certified because in those days it was impossible to get an (Dutch certification – see box) RHP certificate for organic compost. These days it is a lot easier with certification marks awarded by EKO and Skal, but back then it was a right pain in the arse.

The compost was really expensive, which is why I quickly decided to make my own. In those days I had a glasshouse in Aalsmeer where I set up a mixing

line. It was real basic: a cement mixer, a shovel and my bare hands. I even bought my own peat, with of course the base ingredients being white peat and black peat. Everything was done in the old-fashioned organic way, as taught to me by Theo Grendt. Theo had loads of lovely ingredients, such as fish emulsion and blood meal, the original stuff with which in those days many a pioneering grower got some fantastic results.

Experimenting with impunity

I was able to experiment with my plant genetics quite freely in my greenhouse, sometimes with amazing results. Ed Rosenthal visited me once and was amazed with the number of varieties I had growing in that greenhouse. I had actually started out with very little knowledge and simply did all kinds of experiments with raw materials and nutrients in a search for the very best soil mix for this plant. I also owe a big debt of gratitude to Wernard, the first organic grower in the Netherlands. I actually bought my first grow lamp and my first plants from him. Because his Positronics was keen to help everyone learn how to grow, he was tremendously open about the business; how you could clone, which fertilizers need to be in your compost and so forth. He called this approach the Sensimilla Guerrilla.

The advantage of all these experiments was that I was able to make every possible mistake, ones you can not even imagine. You learn immediately from them, because a plant is implacable; I have had plants with dark green leaves that actually looked blue and plants that were so yellow they were almost white. And come to think of it, every colour in between.

That's why I have to give a little laugh when I read in our trade papers some expert of other going on about how he thinks that he has discovered how to recognize a deficiency in a plant and that he has a ready-made solution for it. So for example a certain deficiency that he has identified himself is called a potassium deficiency, while in actuality it is a shortage of a particular trace element, one which the cannabis plant needs a huge amount of. This also amazes the professional compost makers in the world of regular horticulture. I only found this out by accident when I was one of the first people to open a grow shop after Wernard – I was the fourth in the Netherlands, I believe – and brought out a new liquid nutrient that was very successful on the market.

The Goudnetel

I actually started out making soil, after which with someone else I started to also make nutrient for use in hydroculture. Based around these two products I started a grow shop. I started to get a lot of requests from all sorts of grow shops for special earth for growing weed in. Such as "De Boerenwagen", that is now Interpolm, which back then only stocked soils for the regular horticultural industry but was getting more and more requests from home growers for a special mix with the right pH.

First it was just people from my district who came to visit my shop, then people from all over Amsterdam and the surrounding district, and slowly from the rest of the Netherlands. Also a lot of guys who went on to start their own business, such as Edwin from Atami and Roberto from V&L, for whom I now work. At the beginning of their growing careers they came along to me for advice

and all their specialty equipment. De Goudnetel the shop was called, one of the very first to advertise in Highlife.

BioBizz had in the meantime also begun to make organic compost for, among others, Positronics. Of course, they delivered other stuff too, but that was also supplied by Theo Grendt, the only guy who was importing the stuff at the time. I was kind of inclined back then to do things a bit cheaper, since I thought I could get hold the stuff for less. And by doing so loads of people started coming to my shop and these customers also bought other things, lamps and so on.

We were all pioneers in organic horticulture. We used fish emulsion, seaweed extracts and "Maerl" – seaweed lime with more magnesium, instead of Dolocal lime from the Dolomites (which also happens to have magnesium in it). Afterwards the product range was heavily expanded, with Boosters and what not, which I'm still not sure really do what they are claimed to be able to do; there was so little in them that I had my doubts whether any of them worked. It was akin to believing in homeopathy.

Enriching earth with old soil

In the beginning, all compost was standard RHP and no-one else was checking soils too.

RHP was actually a drawback. You had to enrich the soil yourself by inoculating it with bacteria and if need be, by adding 5 % old soil compost too, but then of course it was no longer RHP. But at least then you did have a decent organic soil that was going to live its own life. With this you would only have to fertilize it and in principle it was fine to use as the basis of a full soil system. So no more filling pots, using them and then emptying them again, but choosing a fixed spot of earth to keep using and improving.

There is a lot of biological life in old soil so it can always be used for inoculating new batches of soil, something like co-fertilizing. If you use sterile compost, it will take a long time before a good soil life is up and running in it, stuff like antagonists and soil fungi. If needs be you can let loose some worms to burrow through and mix up the soil to enable it to be properly fertilized. In this way you establish a continuous process, because the worms improve the soil and thanks to this you automatically get a better root system. No booster could match this.

The basic elements of pre-fertilized soil consist in principle of about 10 ingredients. One of the most important of these is phosphate. Back in the past we used natural phosphate in the earth mixes. This phosphate, as it happens, did not dissolve readily in normal soil, but only in somewhat acid soils – and that is not the pH we want; in addition to that, natural phosphate also contains a lot of cadmium which is a poisonous substance and therefore not something we want to see taken up by our plants.

That is why these days we use a "living phosphorous", a granulate from Italy that is extracted from for instance fermented grape pulp, and which is rapidly

absorbable by plants. Just as bone meal is also a slow acting phosphate. And bone meal, by the way, does not actually come from meat rendering plants, so you do not have to worry about Mad Cow disease / BSE; in addition the BSE-causing agents are too large to be absorbable by plants. That is why everything we use is now certified by the EKO Skal system.

In addition, our soil is going to get potassium containing substances such as vinasse (sugar beet remains) and worm castings, compost, bacterial strains and a bunch of other things. And this is the soil mix that you go ahead and make up 5 % with old soil, which of course you should first put through a sieve.

Never acidify your water

Soil that has just been mixed up needs to be allowed to ferment; the bacteria are setting to work, the fertilizers only slowly become free in the mix and there is biological life that needs to start flourishing. If you leave the soil alone for a bit to stand, it will only get better from it. And if you are working purely organically with soil you have made up yourself, then the soil needs at least three months to mature before you use it. The longer the better; through this the ground will become more balanced.

Just-fertilised soil is often too strong, and this can burn your plants, make the leaves grow bent, and so on. You do need a fair bit of room for this process of maturation, such as a shed. My own soil has always had at least three months to ripen before it is ready for planting in.

I still keep my hand in with a bit of regular horticulture; because the organic additives have really come on so far, they are also interesting to me for raising vegetables. In particular, tomatoes, grapes and red peppers can be played around with and experimented on to create new varieties and qualities. I mainly prefer to work with plants that can be raised inside under glass. Runner beans and potatoes have no real interest for me. Glasshouse plants are far more interesting, because you can do more to affect them and play with additives – just like weed, in fact.

With my pre-fertilised organic earth you only have to add water; preferably osmotic water (from which all contaminants have been filtered out, including domestic salt and chlorides) or rain water with absolutely nothing in it. Zero water, you might say. But never acidify your water to get it to the right pH, which some growers do. If you do get problems or deficiencies, you are better off giving leaf fertilizer or adding some seaweed extract or guano to your water in order to give some (longer blooming) varieties just that little bit extra that they need.

What in any case you should never do is use the so-called A and B fertilizers in organically prepared soils, because these fertilizers will totally disturb the biological life. If you add them they will do more harm than good.

Growing for a couple of years in the same soil

By preference I grow in the full earth system by making beds, which with some

pond liner have had their edges raised a good 30 centimetres. Nine plants per square metre is optimal, and by topping the plants one or two times during their growth I get lovely, full plants with more “candles”.

Each time after I have harvested I then take a small top layer of earth along with the root remains out of the soil, fertilize a little and replace a fresh layer of soil mix on top and *ta-da*: the same raised bed is ready to grow in once again. And the soil will just keep getting better and better. The peat is airy enough, so if you just rake it through it a couple of times it is loose enough and not become compacted.

You only need to add that 5 % old soil I mentioned earlier the first time you use the soil bed in order to inoculate it with its new beneficial life forms. And when it comes to watering I try not too let the ground get too wet, or else the soil can become too sticky. If you are worried that your soil might become compacted, you can introduce more aeration into it by setting some worms free in it.

Aeration and CO2 fertilizer

CO2 is also an important nutrient for plants and comes from the fresh air that your grow space takes in. The technique of CO2 fertilization is too expensive and too complicated to do in small spaces, so you have to make do with the air you suck in. If you want more CO2, you are best off working with paraffin burners which also give off plenty of CO2.

You might be lucky and live near Heathrow airport or in the middle of a large city with lots of traffic; then you have lots of CO2 in the air, but elsewhere of course there is much less. So mostly you will need to draw in more air to your space if you want more CO2, but remember if you suck in too much you can lower the temperature too much, certainly in the winter.

The problem is that if you do attempt to draw in more CO2 you will not only need control computers, but also that the relative air moisture content also becomes too high as well. So this becomes a bit of a palaver and getting a petrol heater to warm your incoming air is a lot easier. Or, if you are technically minded and can safely do electrical work, you can fit a heating spiral into the inlet pipe so that during the cold season you can heat the air before it enters your grow space..

Above 25 degrees and you will have to start blowing the air back out again, but that is simple to sort out with a thermostat. The most important thing is that you keep the temperature constant, without loads of peaks and troughs, and it does not matter so much whether this is a constant 23 or 26 degrees.

Insects arrive via clones

The last time I grew was from mother plants raised from seed. There are a number of reasons for this. First of all, you can not just keep going on and on cloning

because the genetic material weakens over time. Secondly, because it is almost always from incoming clones that you get insects in your space. Now of course you can always return the clones, which is very laborious and boring, or you can dip the clones in some substance, which is not very organic, to rid the clones of their unwelcome six-legged beasties. But I prefer just to make my own clones from my own mother plants that I know have been raised in a reasonably sterile space into healthy adult plants. And raised preferably a long way from my grow- and bloom-space, but that is more for legal reasons to protect my genetic material.

The challenge is to stay on top of all the latest developments and apply them in good time. Having been out of the picture for a while with a serious illness, I decided to throw myself back into the fray with my own compost. Even more improved, of course and even better attuned to what the plant really takes out of the soil. Because after all, I don't want to just throw away all my experience and there is nothing nicer than watching plants thrive.

What amazed me most in all my 20 years of experimenting with weed plants is that the things that to us are really quite ordinary are only just breaking through into the regular horticulture scene. Stuff like seaweed, fish emulsion and hummus acids for example, and that organic growing is now *really* organic. This is something you do not need a kite mark certification for.”



Bio Henkie inspects a test space



Bio Henkie checks for breakages

RHP & EKO

What is in most composts that have been approved according to the “RHP” norms?

RHP stands for *Regeling Handels Potgrond* (Compost Trading Regulation) and it is an organisation that checks all the compost making companies in the Netherlands for a number of properties to which they must adhere to in order to get the label ‘RHP checked’.

First of all there must be ‘compulsory’ artificial fertilizer added to the soil, the so-called PG-mix, usually between 1 and 2 kilos per cubic metre of soil. Plus there is a quantity of normal, cheap chalk added. Usually these composts are based on peat cut in northern Germany, Scandinavia, and the cheaper Baltic peat fens.

Secondly, on the entire area where the production takes place there may be no substances such as compost, worm castings, organic fertilizers and suchlike. The RHP does not trust these things and what is more, their use brings you under B.O.O.M. law, which is so complicated that it goes over the heads even of supporters of organic farming.

If there is an RHP certification on a bag of ‘organic’ fertiliser in other words, you can be certain that its contents are absolutely not organic.

EKO and Skal are certifications that guarantee an organic origin and are always safe for use (growing with) for products consumed. And let's face it, weed is a food: a food for the mind.

Soma, the pioneer



Soma and his battle against cancer *Part 5* By Smiley Grass

In each issue of this series for the organic grower we put a different weed farmer from the Netherlands under the spotlight. This time around we are talking to Soma, one of the very first grow pioneers. This American living in the Netherlands was diagnosed as having cancer many years ago, and ever since he has been on a quest to find the very best medicinal marihuana. Soma is mainly occupied with the idea that all the ideal characteristics of the weed plant can be brought together in a single new variety. So far his search has been very productive, judging by the impressive size of his prize cabinet!

Soma: "I don't breed plants professionally but because I only want to be able to treat myself medicinally. With an American recipe and two Dutch doctors prescriptions. Since 1984 I have had cancer of the tongue. Back then I already smoked marihuana, without knowing that for me it was a medicine. Later, by reading up about it and talking with doctors, I came to the conclusion that it could be a good medicine for tackling tumours; for combating pain. I smoke it from the moment I get up until when I go to bed. I have a doctor's prescription for ten grams of cannabis per day, 300 grams per month - which works out at more than 3.5 kilos in a year! So it makes good financial sense that I try and grow my own medicine, so that I do not have to go get it for € 6-to-€ 12 a gram from a coffee shop. My wife too, who was also diagnosed with cancer 16 years ago, also still uses cannabis on prescription.

If I grow plants, I only experiment with the type of plant that has the best medicinal effect on me. That for me is the most important thing; not whether it has the best taste or that it looks the loveliest, but I'm looking only for the cannabis stock that has the best medical, therapeutic effect on humans.

After years of experimentation I have still not found the ideal plant, but I am getting closer and closer. For example, I'm always looking for better breeding stock. There are so many varieties of cannabis plant, it's unbelievable. The older I get and the more I experiment with the plant, the more I am amazed at the immense number of

varieties of plant that can exist within a single family, a lineage, a sex. There must be at least 2,000 different varieties. Each one is a bit different to the others. I'm not just talking about the differences between the Sativa-, the Indica- and the Ruderalis-lineages of cannabis, but also the various climates on different continents that have allowed the plant to mutate in to the many different plants that now exist. And let's not forget that it was humans who for thousands of years have grown them and selected them for specific characteristics.

High-flyer

The first plants I ever grew I came across by accident. In the spring of 1971 I was living in Vermont in an apartment and was smoking a lot of weed. I usually just tossed the seeds carelessly out of the window, without paying them any thought. One day I looked outside and saw a couple of new plants in my garden. Two meters tall and almost up to my window sill! I couldn't believe it! I dug them out and re-planted them at a friend's place, who lived up in the mountains. We planted more seeds there, from among others some Colombian weed. We thought we were being nice and busy, but it turned out they were all equatorial races. Varieties that grow in really hot climates with very little difference in daylight hours between summer autumn; in other words they needed a lot of time to bloom and ripen. In Vermont that was something they did not have. In October it had already begun to freeze, while our plants had barely begun to develop buds. But even before we could enjoy what little we had, the park rangers

found our plants and took them away. Our first harvest! From that moment on I kept every seed.

In 1972 I got my hands on some Thai sticks for the first time. The weed was three times as expensive as the stuff I normally got, but the sheer quality brought me to new psychedelic peaks. And the high lasted so long, that it immediately became my favourite smoke. Back then the quality was still excellent. The Vietnam War was still full on and the weed was relatively cheap with a good price-to-quality ratio. I kept all the seeds I found, even those from Laos and Cambodia. In 1974 I got hold of two wonderful seeds some friends had smuggled for me out of Afghanistan. These seeds I also later planted.

Afghani Asians

In the meantime I had moved to a warmer climate: the North of Florida. Even though there was still a Winter here, this state has a much longer and warmer growing season. It was there I began to grow the Afghan and Asian varieties. The Afghan plants were no more than 80 cms tall. It did not matter what fertiliser I tried, or how long I let it grow. It just stayed small, made its flowers and that was that. With lovely crystals and a fantastic skunky smell. But the South-East Asian varieties I planted ended up around five metres tall! They were the biggest plants I have ever grown; trees, with a stem as thick as a fist. These Asian plants developed a few male flowers, which fertilised the pure



Soma's Tip: after 10 days of blooming, pinch the main stem gently just under the growing tip, and with your fingers roll the stem so it bends 90 degrees. That is a perfect way of getting more (3 to 5) large buds. This plant is a Buddha's Sister.



These tall plants grow up to the heavens, which is why they are called Hash Heaven

Afghan females. I ended up with these big seeds from an Afghan mother and a South-East Asian father. Plants from Laos, Cambodia and Thailand do tend to have an inclination towards double-genderedness - more so than other varieties do.

The plants from these seeds were at most three metres tall and the bloom time was a bit shorter thanks to the influence of the Afghan mother. The leaves were larger than on their Asian father, so the plant was better able to make best use of the sunlight available in our climate. From this new stock we made a few mother plants, which I cloned. I grew these Afghan-Asians for years. I wish I still had the same genetic qualities in my plants these days. It was the most powerful and marvellous plant that I have ever had. It had the taste of its Cambodian origin; that of pure nectar. It was also the medicinal weed that I am still trying to find a way to get back to. By marshalling all the genetic qualities in the stock I have at home, I hope to be able to extract the right ones and bring them all together again once more and so get the plant I want. Because the original plant, thanks to its long time to bloom would not make it in a grow room.

Genetics

Towards the end of the 1980s I first began to take notice of grow lamps. Before then I had only screwed around a bit with fluorescent lights. Now I could also set up grow rooms indoors. I started out by learning as much as I could about the genetics of the plant. I was still working with seeds from outdoor varieties, so the switch over was quite tricky. I had so much South-East Asian Indica and Mexican Sativa in the genes of my stock, it took me several harvests before I could select out a new variety. The bloom times were too long and the plants were too big. In 1988 I began to realise that if I was going to raise harvests indoors, I also wanted a quicker harvest.

So I was always looking for genes that would accelerate the ripening of plants indoors. From every good weed I had, I saved the seeds. Whether it had an Afghan origin or was descended from a Haze or Northern Lights, I save everything. Preferably a minimum of ten seeds per variety. So at one point I had a couple of rooms filled with weed, with between them a good 10 or 15 different characteristics that I could compare with each other, under the same conditions in the same grow conditions. Which ones grew faster, which more slowly; which ones had a better yield, which had a better taste, which were the loveliest and produced the best seeds and which ones had the best resistance to infestations of insects. I selected from them over a series of harvests, by among other things crossing full brothers and sisters with each other several times.

One of the new types that I created in this way I called 'Big Skunk Korean'. (Note: you can only talk of a new variety after having made more than 20 cross-fertilisations between full brothers and sisters, just as for example the King Edward is a variety of the potato family and one can only be called King Edward when it has no other characteristics of, say, the Maris Piper present in the new spud - SG.). It was a mix of Big Bud, Skunk #1 and a Korean weed variety. It was a really exquisite plant, one that tasted as good as the high it gave you. And above all it had a great yield. They were more or less all female plants that developed just a few seeds, because here and there were a few small male flowers among them. In other words, they were mildly hermaphrodite (= two sexes - SG).

Jack Herer

In the meantime I had got to know Jack Herer in 1990. In the week that I hung around with him, I not only managed to borrow a whole pile of books, but he talked constantly all day about weed. For my part, I tried to become like a sponge around him, to just soak up as much of his knowledge as I could. I was given a couple of seeds by him, which of course I planted immediately. Together with my new planting of original Superskunk, the Big Skunk Korea I had developed myself, and an Afghan-Hawaiian variety. As usual, my Korean females made a few male flowers. I had a ventilator in the room that spread the small amounts of pollen over all the females, thanks to which every plant was fertilised by those Koreans' pollen. So every plant gave me yet more new seed, that I went ahead and planted again. By selecting from the offspring I had now developed eight varieties; all different Soma Skunks, that did not need males in order to make seed. These self-fertilising plants do less poorly than most hermaphrodites. The whole plant did not become filled with seed, but things were a little bit more subtle with them. After the females had bloomed more or less completely, only then did a couple of male flowers develop which in turn made only a few seeds. From these seeds a female plant always developed; I just could not get a pure male no matter how hard I tried. I only get genuine hermaphrodites under poor conditions, when the plants are under stress (thanks to flickering lamps or too little water).

Everyone who plants my seeds gets female plants. It does not matter whether it is outdoors or indoors under lamps. In Switzerland, Poland, the US and in the Netherlands; everywhere there is a lovely consistency to the plants. Most growers prefer not to work with hermaphrodites, but I do – a lot. I love the taste, the result; everything about these plants is just brilliant. Seed lines such as these can be very valuable. You know for sure that if you plant them, you are not going to end up with half of them being useless males. They will all be females, from which you will get a couple of seeds without having to bother with raising any males.

White Widow

I was one of the first growers who got to work with the White Widow varieties, though I did not actually work on the development of the plant. The plant was not at the time fully developed. At a certain moment I must have had around 30 different White Widows. It was pretty confusing in the beginning. Everyone called it 'White Widow', but no-one knew what it was. By being busy with it, I back-selected out four different varieties from the 'original' 30 varieties. But it is not really my favourite skunk to grow. You have to wait at least 10 weeks for a not exactly huge harvest, despite the fact that it does yield a good amount of crystals. Given the same amount of space I prefer to raise a Soma Skunk in eight to nine weeks, with a better yield and better taste.

You need a good number of harvests to do a good selection; to discover what all the characteristic properties of the different plants do. So I know that "Somango" has a heap of Super Skunk in it, but it has also been influenced by crossing-in some self-fertilising White Widow. This is how I came up with "RockBudd". It is as if the White Widow genes have added something to the properties that I had already collected together in this plant. That is in my opinion one of the reasons that this plant makes really tight, compact buds with not too many twigs and above all is smothered in crystals.

Soma Skunks

My seeds have become more and more perfect. I select more strongly and keep ever fewer numbers of varieties. If for example I have the good characteristics of a Haze varieties in one of my plants, I don't go mucking about with other Haze-like types. Because I already have the good characteristics, the ones I was looking for, already in my stock. Just like those in my own hash plant, the White Widow, and my Tibetan variety.

Soma Skunk Sativa for example has genes from Super Skunk, Big Skunk Korean (BSK) and Haze and is a really high, active weed. "Kilimanjaro" also has a few genes from the BSK, Product 19 (once popular) and my Sativa. The "Somango" has BSK, Super Skunk and Jack Herer in it. The one I call "Somanna" has only Super Skunk and Jack Herer in her blood, while the "Lavender" has in addition to these two also some characteristics of the BSK and my Afghan-Hawaii varieties united in it. Finally, my Hash plant #13, which I call "HashHeavens", is a pure offspring of

the cross between a plant from Lebanon and one from Afghanistan, to which I later added a cross with a Haze. One of the good properties of this plant was displayed by a friend of mine. His lower body is paralysed. By smoking this plant the uncontrollable spastic movement of his feet relax. He is also one of the reasons why I have devoted so much effort to developing medicinal weed.

With these mother plants I have developed most of the varieties I now use. My skunks are really fantastic; White Willow, named after my daughter, White Light, Free Tibet, Afghani Delight, Somawi and Kahuna are outstanding weeds with the highlights being Buddha's Sister (two 2nd prizes) and Reclyning Buddha (one 3rd prize). But it is my Hazes that have really made it and are now world famous: Hash Heaven of course, Haze Heaven, New York City Diesel (a 1st, 2nd and 3rd prize) and my absolute champ, the Amnesia Haze with three 1st prizes.

Dutch compost

I now use Canna Terra Organic, in which there's a little coco and no Perlite, for my compost. I do often add some Perlite myself. In the Netherlands I always use the ready to use premix soils, that have been specially developed for growing hemp in. There is no finer soil in the world than here. And I have tried them all, including AllMix, LightMix and the Batmix. I re-use some of my soil and

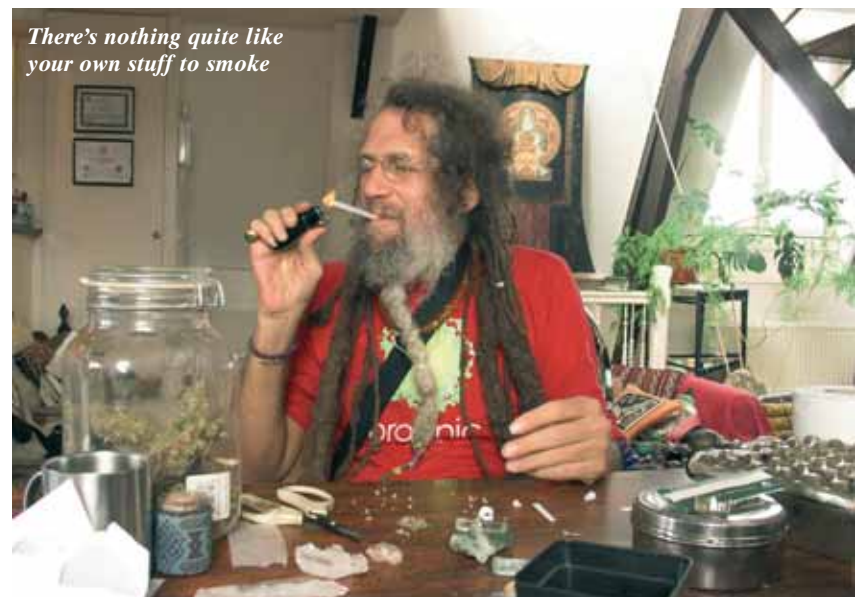
only use fresh soil for the young plants. Once I have got them into bloom, they are put into a mix of fresh and used soil, with a bit of coco peat added, some fertilisers and a bit of extra Perlite. This last ingredient is added because air is very important for the plant, especially for the roots.

For fertilising I always use Guano, either dried (to which in recent grows I have been adding some trace elements, because otherwise thanks to the high use of phosphorus I would end up with a deficiency), or in liquid form. I have also been using Organic Iguana Juice from Advanced Nutrients, with outstanding results. I give the Guano and water bit by bit. In the last two weeks I do not give any more nutrients, because I do not especially want to be able to taste seagull shit. I let the pots become pretty dry before I give the plants water again, in order to get an optimal root system. In the last week I give them no more water at all.

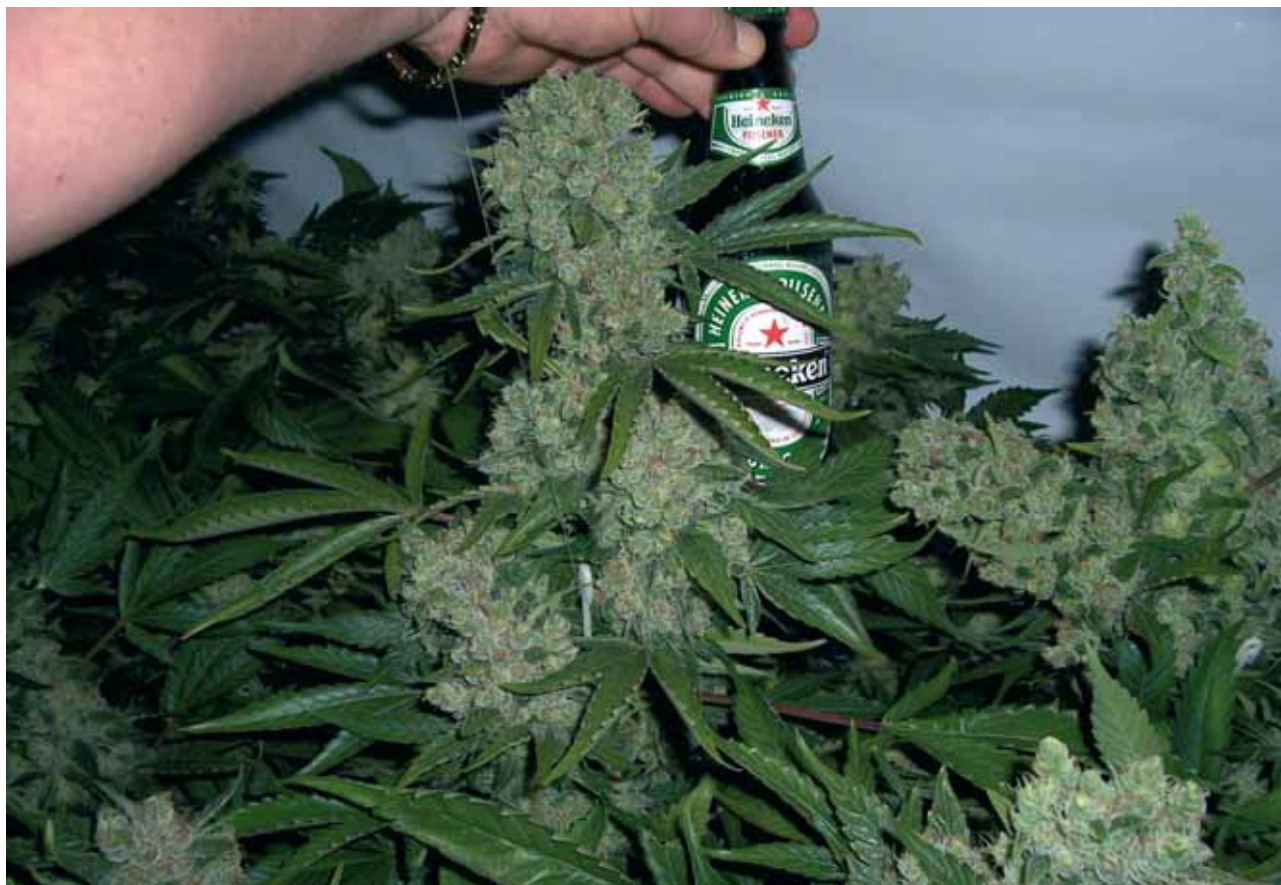
I always keep a good eye on the pH. The water from the tap sometimes has a pH of 8.3. That's why the water goes first into a bath tub, where I bring the pH back towards 7.0 with a few drops of phosphoric acid, before I put any of it on my plants. The leaves are greener as a result. For combating pests I only use Preventief, an enzyme preparation based on lactic acid. It is the only substance that does not kill my ladybirds, but that does still kill small pests."



Soma checks the blooming in his plantation of Diesel Sister, a new variety that he has just developed.



There's nothing quite like your own stuff to smoke



Victor and his love of "big pots" *Part 6*

Text Smiley Grass/Photos by André

Each time in this series for the organic grower, a different weed farmer from the Netherlands is put under the spotlight. In this issue we get to take a stroll around the kitchen of Victor, an antique dealer from the South of the country and a great plant lover. Victor really does love his plants and pampers them from beginning to end, when they thank him by producing nearly three pounds (1.5 kg) of smoke-ready buds. How does Victor do it?

"First of all, I give them all the space they need by using pretty big pots. My pots have a diameter of around 40 centimetres and a volume of nearly 25 litres. With a bigger pot volume I get bigger plants and a better yield. And I am less vulnerable to the law because I have fewer plants at home: 18 pots with 28 plants, in place of 60 or more, all packed in to about two square metres. I generally get about the same or more off them, and they take a lot less work. Large pots like this are just easier to work with.

Over the years I have re-built my attic eight times already; each time I try something a bit different. I had always been busy with smaller pots, as well as 7.5 litre ones. This was until one time I came across a couple of these large pots. They had been sitting in my shed for years and decided to finally give them a try out. I tried all kinds of mixes; everything just chucked in together. Blood meal, fish meal – you name it. I came to the conclusion that if I was going to work with such big pots, I was best off using a simple organic compost with an NPK of 7-7-5, from which I reckoned I could get a harvest of at least 30 grams per plant. Plus I would only have to add water! Once or twice a week, no more.

And at that moment I went further with my experimentation. I chucked all kinds of fertilizers and food supplements in and came up with better and better results. This was partly down to articles in Highlife and Soft Secrets.

All my knowledge about growing in 24-litre pots I had to gather for myself. There

is almost no-one in the Netherlands who could tell me how best to go about it. I have 16 years' experience, because I started growing outdoors back when I still lived with my mother. If I'm going to work with something, then first I want to figure it out for myself. I did have the advantage that a friend was working with the same pots, and sometimes with the same plant. But we had very different spaces, ventilation, lamps and light and then you might as well be talking about a different plant. But you do learn a hell of a lot.

As well as this I had a special diary, my memory support. Everything that I did, I wrote up in this. The longer I grow, the more I can build up this external memory. Thanks to this, I know that if things are going to go wrong, it will be

I'm an organic grower; I just don't get the point of hydro. A plant belongs in a nice tub filled with soil. To me, that's what a plant is all about.

on or around the 50th day. The block that I have at the moment is the best I have ever played with. And that is always what I'm striving for, after all.

Mothers

My mother plants are also raised in big pots, in *really* big pots. I have them stood in 60-litre pots, round at a friend of mine's place. He's not active in the weed world in any other way, so he remains the right side of the law and I can be sure of always having access to good mothers. I help with their maintenance, he gets his smokeables

for a reasonable price - so it all works out good for both of us. I find in the grow scene you usually get sold clones with spint...

A good mother plant is very important. I have three of them, of which two are really big – at least two metres tall. Not like they mostly do these days – those little bonsai shrubs, but adult mothers. They give grown up clones: lovely, strong and woody.

As for nutrients, with the mothers we use a very simple feed. A basic Terra Vega or a bottle of cheap nutrient from the 'Boerenbond' (Farmers' Union – ed.), with an NPK of 7-7-14. Terra Vega is for a grow medium a really good feed. There's everything in it. It's shite for blooming, but for growth it's good stuff.

The mother plants are just stood under ordinary 'blue' Osram Agro glow burners. For the rest, I only have one task and that is discipline. With a plant like this, just as if you had a baby, you have to change it in good time and look after it when it needs it. If you just stick a plant in a pot and never pay it any attention, nothing's going to come of it. Even a dog is let out when it wants to go, right?

Oasis

Often I put the newly rooted clones in a pot of earth on a windowsill for the first

five weeks. Then they build up a nice natural base. And the older the clones are before they go under the lamps the better. It doesn't cost you a dime to put them on a windowsill. First I let them become a little bit mature. Do as little as possible to your clones; just let them be.

But I begin with medium blocks from 'Oasis'. They're ideal for growing in soil; I've never had such great clones as in the last few years. Such a fresh green. I take a cutting from the mother plant, nice and short, under the internodes, and shove it with some cloning powder into the Oasis block. It's the same soft stuff as you use in Christmas ornaments and flower arrangements, a sort of plastic. You can buy it at the florists or at the garden centre. I know for sure that it is 100% sterile and it is pH-neutral. So if I pour some mains water over it, it just takes on the pH of the water company. I acidify it down to 6.5 and keep the temperature of the grow room at a minimum of 20 degrees. Then within three weeks it has taken root without me having to do anything. Except keep it wet of course.

The stuff has a perfect absorbency. If you plonk the clone directly in the middle, the young sprout can take up every last drop of water. If you stick the clone in too deep then it dries out because the water doesn't reach the beginning roots. The medium block dries out from the outside in.

In the grow tray I restrict the fresh air for the first two days. The air moisture inside rises to near enough 100%. On the third and fourth days, I open the air vents, and on the fifth day I remove the tray's lid completely. Not a clone has failed! I never keep them longer than this in such a humid regime; I want my clones to stay healthy. In the worst case, you get a mould or infection in your plants, and you lose up to half of them! That is the only thing you have to watch out very carefully for when using oasis: the clones have to have a nice tight fit. If air gets in around them, you get mould.

How do most clones get screwed up? You take a tray with rock wool clones and by accident when watering it you give it a small shock. They come a bit loose and so air can get in to them. In principle, 25% of the clones are already screwed. With this stuff: you prick a small hole with a cocktail stick, you pop the clone in and it's wedged in there firm as anything is. Just to be sure, I take a pen and give a small push next to the clone's base and then the cutting is 100% sealed off from the outside air.

Re-potting

The clones never take root uniformly of course; the one always eats and drinks better than the other. I do re-pot them when I have to, but only when it's necessary to minimise the stress caused them. That's why I keep a close eye on them. It is handy to let them germinate on a glass plate. Then you only have to lift them up to see if the roots are visible yet or not. The roots will just as easily shoot into other blocks if you don't keep an eye on them.

As soon as they've got roots, I pot them into soil. To me, that's a hundred times

better than putting the clone directly into soil. With little Jiffy pots it takes about three weeks before they start to bloom. With my method, they sometimes do that within 10 days!

When I'm re-potting, I just leave the oasis blocks around them. Such a small block can hold a good 30 millilitres of water, which is a heck of a lot. That is why for the first three or four days there is no need to water them. The clone has enough power to keep going. When you're re-potting from rock wool to soil, the rock wool sucks the clone completely dry. Then you can be dripping water on it ten times a day.

From below

I only ever take off the lowest two internodes (the growth that comes out of the point where the leaf meets the stem); the rest I leave alone. And I don't top them, because then you get a better yield. Once I can see that the clones have strong roots, they are all switched over to soil. I mean, you have to keep the plant natural. I prefer to stand in a good pair of shoes, and it is just the same for a plant. They also prefer to be stood in a pot of good soil. That's how you have to look at things, you have to put yourself in the place of the plant. The better they feel, the less they still have to get used to warmth and cold. That is also really important. You have to cause as little stress to young plants as you can. You just have to try and do what's good for the plant, and that takes a lot of discipline.

I choose to let my plants bloom fully. I'm a bloomer, and then you can not have too much fuss around. It's a real factory having and maintaining a grow space like this; you have to rebuild, get new raw materials; sometimes you have to do this, you suddenly have to that ... meanwhile I have a whole day's work, but my wife knows the score.

Most people forget one thing: that plants reach a massive peak in root growth activity, which starts to tail off again two weeks after blooming begins. This is something you want to try and influence. That's why I water mine during this extended growth spurt both from above and from below. From above I give them neutral water and from beneath, in the dish under the pot, water with a little splash of Roots (from Bionova). In this way I give plants an optimal stimulation. I do this until two weeks after the bloom begins. After that I let all the roots that have grown into the dish die off again.

From underneath I also sometimes mix in a little potash, and that also stimulates the root growth a bit. Pure potash - you only need to put two millilitres into ten litres of water. I give it with a plant syringe. The plant already has so much phosphorus, nitrogen and calcium in the pot that I have no need to give them any more. But pure potash and Roots make the roots go off and try to find more. And the more roots, the more nutrient they can then pump back upwards, and the more buds you end up with.

Blooming

At the bottom of my pots I always toss in a layer of clay granules, so that they can't

dry out from the bottom. Once I see roots poking out from there then I have an idea how things are going. That's 35 bloody centimetres that they've got to travel! If I can already see them down below after a week, then I start to influence them. Of course, you should not let them poke out of the pot. Otherwise, when you come to turn the pot, you'll pinch the roots and then you've got damage. That will cost the plant energy to fix its wounds. Only once they start to bloom do I let the lowest roots die off. For this I use a catalyst and BN-enzyme, which closes the roots off nicely. This allows a section of root to die off and yet not lead to an increased risk of fungal infection. Once the whole growing cycle has been completed, I simply rake through the clay granules, clean them off and start to use them again straight away.

After a minimum of two and a maximum of three weeks, I start the plants off with their blooming. That's pushing things a bit. But by then, they are well-rooted clones and they do not need any more getting used to lamps. Within a day they've caught on. And then you have to keep them gorging. If it gets dried out, then it won't be able to eat. That's why I always make sure that it is never too dry, but at the same time, never too wet. You also have to take care not to make it addicted. Hemp plants have an inclination to fall into a pattern. If you, for example, give them water every two days, then that's what they come to crave. That's why from time to time I give them water only every three days, or even every four days. And why one time I'll give them 700 millilitres, and another time 800 millilitres or maybe even a litre and a half. I keep track of all this on my calendar.

Love of the green

Once in a while I'll move them. Then I think: 'things are going too well for you, matey!' Then he's shifted over to the other side. The plants not doing quite so well, I move in to the middle, and in this way I'm constantly moving them around. The really big ones, the whoppers, I mostly keep on the outer edge. They have just got to keep drinking. If I feel they're not drinking enough, then there is something wrong with the housekeeping. Then I give her a bit of BN-enzyme from Bionova. I have tried everything in my growing life, so all my kitchen cupboards are filled up. Sometimes I get a good harvest, yet I still feel there could have been more. If I call Bionova, I get good information straight away, I don't need to go in person. They give out their information totally freely. For example, when I wanted to know something about NPK. With others, you have to physically drop by, to calculate the conversion formula. Bionova gives me everything I need to know. If outsiders can substantiate for me how things are going, then the going is probably good.

It all begins with a good base, then you've already got half your harvest. The more light, the more air, and how much more nutrients you can give them, the higher your yield is going to be. These are just laws of nature. I do the same for my house plants. They had never flowered, but now they are flowering! You can just imagine what kind of a soil that is! They get all the left-overs from all my

nutrients. I have a test plant, a lab rat, and if this fails, then I know for sure that I'm doing something wrong. I try to compare everything. What are the similarities between my house plants and the hemp plants? I'd also like to take clones from my conifers, on a small scale. You just have to have green fingers. It's a feeling.

I'm an organic grower; I just don't get the point of hydro. A plant belongs in a nice tub filled with soil. To me, that's what a plant is all about. No rock wool, even though the whole of the Netherlands is filled with it. Tomato green houses, cucumber cloches - that's just selling balls filled with water. You have to enjoy handling it. Just so long as you give them water regularly, then you've got half your harvest already.

Love too

The other week I met this young guy who had just started out growing and I gave him three of my plants. If it's only a couple or three I'm happy to help out. When it gets to be more than that, then I can't really be bothered. Anyway, he has a little smart shop, and I came in and he just tosses the box with the plants in over into a corner. So I totally lost my rag! I go to all the trouble to make sure he gets a few great condition plants and the geezer breaks their bloody necks without so much as a thought! I just can't stand that sort of

behaviour. Keep the fuck off my plants! If someone's invited in to my grow room, it's just the same. I'm always looking out for my plants; I'm just very careful and even touch the leaves as little as possible.

Floor heating

I also use a heated floor, but that that comes in the next phase. Only my clones are warmed where they stand. I just crank it up to 25 degrees where my plants are, and I have a hugely thick layer of insulating material under them. After there had been a raid on my place, the same evening I had the thought: shall I put things back as they were? I thought, you know what: I sat for ages getting pissed off at the floor, the eight centimetre-thick doors. I'd set up a complete safari park! Now there's just a thick layer of insulation and a layer of plastic. I don't think a better insulated floor than mine even exists. The thickest factor that there is, that's underneath. I've sent away for documentation on all the floor heating systems. I've got all the folders and books at home. I have here a folder from a Chinese company: do you need to drive a buggy between your plants? The grow world is doing absolutely nothing, I'll tell you! You have to search far and wide for the cool stuff, not just in the Netherlands. There can't be more than the odd hemp farmer who really needs to be able to drive a buggy. Is it really necessary?"



They have just got to keep drinking. If I feel they're not drinking enough, then there is something wrong with the housekeeping. Then I give her a bit of BN-enzyme from Bionova.



A room full of Hawaiian Haze



Peter does it with bubbles *Part 7*

Text and Photos: Smiley Grass

In this series for the organic grower, each issue we put a different weed grower from the Netherlands under the spotlight. In this episode we are privileged with a glimpse into the kitchen of Peter, a 45-year-old furniture maker from the centre of Utrecht and a great plant lover. He only harvests once a year, sometimes twice. But then we are talking about perfection. Because Peter has but a single goal: every year to not just raise Haze with a sweet high in as organic as possible, but to also make the best homemade Bubble Hash in the Netherlands. So how does Peter go about this?

“My basic starting point is a good organic manure that I supplement with chemically pure fertilizers. For the de natural irregularities that go with the territory when you’re growing organically, I top up my plants according to their individual needs with, pure N, P and Ks. I do not really use all that many Boosters because I actually tend to have too many trace elements anyway. The addition of metals is something I keep more firmly under control, because having too high a concentration of trace elements is not a good thing, it’s overkill; twice during each grow – maximum - is enough for the whole harvest. If any deficiencies do develop, depending on the varieties you are growing, then these are easy to make up during the bloom. If you discover small white stripes between the veins of the leaves that means that they have been given a few too many trace elements and that you have to stop giving supplements to your plants. At the same time you learn that next time you grow this variety to go a bit easier with your hand.

Fallbrook Redhair

I first started growing on my 18th birthday. First on my balcony; nice in the outdoors, and excitement all Summer wondering how the last few weeks of blooming would turn out: nice weather and an abundant harvest, or a wet Autumn and mould among your buds? Back in the beginning of the 1980s (grow shop pioneer) Wernard Bruining introduced me for the first time to smoking the “new” Nederweed, Skunk, it

was called, I believe. I was immediately smitten. And of course I got hold of a few clones as soon as I could, at first for my balcony. From those plants from the early days I have been growing their descendants for years. In the beginning I had selected two different genetic lines from the newcomers, one that was totally white and another that was more or less purple. A real dark red, something it most probably got from an ancestor of the Skunk, the so-called Fallbrook Redhair, names after the place between San Diego on the Mexican border and Los Angeles, so in California, and developed by the local farmers between the avocado trees. And take note – during the 1970s, because since Nancy Reagan kicked off the War on Drugs in the US you don’t find very much dope in Fallbrook any more, or if you do it’s come from the US Marines who have put some seeds to use in the wilderness surrounding their nearby Camp Pendleton.

Seven years ago in the space of a day I lost my house and my wife (and so my balcony too), and I was forced to set up camp in a cramped attic. I had no room for more than a bed and a cupboard, and this is where I lived for a while. The cupboard had a footprint of about 60 by 60 centimetres – exactly big enough to be able to carry on growing my green friends, with a bit of help from some good lighting. And to make new crosses, of course.

I began in the cupboard with 60 seeds and 20 clones that I allowed at the peak of their bloom to be fertilised by

a wonderful Mexican male, a Sativa in fact. Out of this I had one stroke of good fortune. A Haze, and a really strange one at that, that I went on to cross more times, made selections and bred from. The result was that I picked up First and Second prizes for organic weed and that my home made hash has now been voted a couple of years in a row by the Americans (at High Times) as the best Bubble Hash in the world. That plant is the Hawaiian Haze, the original, and developed by me, in a cupboard next to my bed. It really is a strange world.

Changing into something you want

By determining yourself what levels of NPKs to add to your organic manure you can slowly get your plants to change in to something that you want. Agriculturalists and growers in greenhouses often give their products some extra nitrogen at the beginning of their crop; so you can assume, since growing under lamps creates conditions that are usually more extreme than in our domestic outdoor spring, that in the beginning you also need to give a lot of extra nitrogen to your plants too.

The majority of A and B nutrients when used on soil are not sufficiently adequate, because they provide too fierce a transition for the as yet still young plants that are in a growth spurt. That sort of nutrient is really only suitable for use if your soil is really very poor, but then you are missing a good base and it is actually pretty pointless to grow in such soil. With soil you have to play around

and make use of the buffering qualities that good soil has naturally. You should just make sure that you give precisely enough that the plant should after a week show signs of a deficiency. And then in the days following this point you give exactly what the plant needs for the next five days.

In short I would say that that I let the fertilizing with nitrogen (N) peak in the beginning, from the 2nd up to and including the 4th week, and then after this to slowly let it be phased out until two weeks before the harvest.

I allow the phosphorous (P) to peak in the 2nd week, when the super growth begins, then in the same way to reduce to a minimum, and then gradually begin to raise it again from week four to reach its maximum in week eight or nine, a level I can maintain until the 13th week before stopping giving it a week and a half before the harvest.

I gradually apply potassium a bit more, actually throughout the whole cycle in relatively steady levels with a light peak in the middle of the bloom. During the ten to fifteen days before the harvest I only give my plants water, since the plant is barely taking up any nutrients, if any at all and so she has enough just with what still sits in the soil. In addition to that it is a nicer smoke for me and the consumer, because an excess of salts in the last week before the harvest gives the plant a sharp taste when it is smoked. I do not want to taste what kind of manure was being given the plant while I am smoking, thank you very much. And I’m assuming neither do you.

It depends on what the girls need...

I mix All-Mix with cloning soil in a 1-to-1 ratio when I plant the young clones in small pots. I begin with giving them a bit of extra nitrogen and phosphorous so that I arrive at an Ec-value (salt value) of 0.9, working from the assumption that the mains water has an Ec-value of 0.6 as a base. I bump that up a notch at the end of the week to an Ec of 1.3. In the 2nd week I re-pot the young plants in the soil, that has a base with an Ec-value of 1.6. I enrich the first watering with a few crumbs of magnesium and a little nitrogen, due to the huge demand at that moment, to a maximum of 0.9 Ec. The second feeding I give a little more, up to an Ec of 1.0, and for the third a little more again, with an Ec of 1.1 or 1.2, depending on what the girls need. At that moment you can still jump in directly with fast results. My green girlfriends understand me, and I understand them...

The soil that I have used for a second time has become pretty much depleted of nitrogen and trace elements during the first harvest I used it for and so I add extra to the old soil in order to be able to take a second crop off it. What I have a shortage of I make up with All-Mix. The Ec of this ready to use soil can vary a bit and tends to be between 1.8 and 2.4. if you start out with a heavy hand on your base and the Ec of your new All-Mix is a bit on the high side, then of course I don’t give any extra nitrogen and pay

attention to how the plants develop during the first five days they spend with their roots in the new medium. That is why I always mix it in to my old soil. And with a totally new set up I therefore always mix it with cloning soil to get my Ec around 1.6.

Select every two years

At the moment I have 24 different mother pants. That alone is a hell of a lot of work. I number every clone, so that I always know what is going on. Even four years later I can still tell what the original mother was for any plant I happen to have in my hands at that moment. Then I can also tell, even over the longer term, which plant makes more THC and / or the loveliest buds, which is more compact and less vulnerable to mould infection, and which type changes over time, for the better as well as for the worse. That is why I tend to make a selection every two years, to be constantly maintaining the quality or, where necessary, to improve. I only got in to growing to provide myself with something good to smoke, not to go making the best hash in the world, because actually that does not interest me one little bit. It's all about *my own* health and *my own* head and what I feel most comfortable with, right? In short, what I do I do for me only. You gotta do what you gotta do. That is why I only harvest once or twice a year. I just do not fancy doing it more than that; 15 weeks per cycle is quite enough, and I have my own work to do making furniture, something that remains to base of my existence.

A gram per Watt

I do not grow in pots but in 6 trays of soil of about one and half square metres per tray. I have put castors under each tray so that they can be wheeled in any direction and I can allow them to make the best use of the light and I can make paths to where I want to move them. I normally pot 15-by-15 plants or 225 plants per tray, but at the moment I just happen to have 17-by-19, which is 323 plants in each. I topped al of these in the 2nd week of growth, so that in total I now have 646 tops. I use for these almost two and a half cubic metres of soil and I have nine 600 Watt lamps hanging above them. It is a good rule of thumb that I can easily get around 1 gram per Watt and always have a total yield of around 5 kilos per harvest. As long as I have had no diseases or insects affecting my plants or have had to deal with any other inconveniences that have a tendency to arise when dealing with growing, I keep a light hand. But a bit of pyrethrum, 100 % organic and made from chrysanthemums, in the beginning phase of the cycle cannot do any harm to use. In addition there are various precautions you can take against all sorts of pest, including against spint. Your own hygiene and working cleanly are both essential and can prevent a whole bunch of heartache. Did you know that house plants often harbour spint? On a Benjamin Ficus there only have to be seven lying in wait in order for them to explode in your bloom room to a population of 700.000. Of course you can also bring spint in from outside, but with a little bit of decent air management you will not have trouble with them so easily.



323 plants; 646 buds

Air pipes and compact buds

I also expel the air outside, but first I let it run via long pipes under my floors so that the worst of the chill is taken out of it. By doing to I very rarely get spint in my space and if I did I could always put a filter in the system, right? The air does have to be fresh from outside because the buds as a result will remain more compact than if I had allowed warm air in, certainly when starting up the lamp, which is something I have learned from experience. Doing so suggests to the plants a morning glory, including the cold air that comes with it. The depleted air exits my house via a carbon filter and if necessary via a heat sensitive valve partially back in to the blooming room again. If the filter is no

longer working optimally, then I am the first to smell it, before my neighbours get any wind of it, or ‘coincidental’ passers-by feel compelled to phone a snitch line.

From Skuff to Bubble

Ten years ago I made my first skuff. Back then it was all about the Pollinator, a sort of slowly turning centrifuge that I had bought from Milla. The only drawback with it was that the finest filtering was not available so that there was relatively a lot of plant matter in the hash left behind, thanks to which the hash sometimes had a rather sharp taste and coughing is never really very good for the lungs. I was pretty pleased then when Milla showed me six years ago how I could make Ice. With the Isolator of course:

silk cloths of with different fineness, that you hang in a bucket of icy water at about 4 degrees which with the aid of a food mixer inserted through the lid of the bucket you keep you weed waste churning with a large quantity of ice cubes. After an hour and a half of churning you get such pure THC from a single load of fresh leaf- and flower-waste in the lowest silk bag, with no plant matter and no coughing. If you hold a flame next to the hash, it cooks as if there were no plant matter in it at all. If you have made it well then you may be able to make out tiny bubbles, and that is why these days it is also called Bubble Hash, premium quality Ice. That is a marvellous feeling, I can tell you, to make the best hash in the world. And all done in my own modest little kitchen.”



Second use is also recycling

Arthur in a patch of one of his guerilla gardens, in the middle of a corn field



Arthur and his black outdoor weed

Text & photos by Smiley Grass

In this series for the organic grower each issue will feature another weed farmer from the Netherlands. This time it is the turn of Arthur, a 38-year-old bricklayer from a region around Nijmegen, in the South of the country. Not under the rays of an artificial light, but in the full glory of sun light. He shares his outdoor experiences here with SSUK.

“The biggest difference between growing weed outdoors and growing it indoors is of course that you can only harvest your crop once in a year. It is in principle anxious work, because the closer you get to the harvest period, the more nervous you become. I’m not just talking about myself; practically half the village does. That mostly comes from the light aircraft that sometimes fly so low that you can read the badges of the national police force members inside. They know everything and brought everything under their surveillance by photographing the entire district.

We have a little bit of luck on our side. We mostly grow ‘Double Powerplay’ (double purple) and this is much harder to

almost lost a complete harvest, because mould struck thanks to the air moisture being too high. The plant comes in nature from areas where the autumn is warm and dry, whilst here we often have to contend with a damp and cold autumn. That is precisely the opposite. You have a much greater chance of mould infection here, and if it does strike you have to harvest immediately. That is the disadvantage of outdoor weed. It can happen that you have to harvest before the crop really hasn’t fully ripened. But you’ve got to do it, or else everything will just rot away. Then you end up with not such good quality. You are always dependent on nature. Last summer was a really lovely one, but the end of summer and autumn

One other big difference to growing indoors is the large quantity that needs drying and trimming all at the same time. People who try and raise a field of weed for the first time outdoors underestimate this part of the process. If it is the first time you have planted outdoors, try not to grow more than 50 plants, is my advice. Some people begin with a couple of hundred or more. Then when it comes to harvest time, they discover what a huge amount of painstaking work is involved.

Harvesting

Come harvest time, first of all we remove the crown buds, so that the side buds can still spend a bit more time ripening. Before we start hanging them up to dry, we pluck the large leaves off. Actually, this part is a really social bit of the job is. We set to work in a large group of us, sometimes we have around 20 trimmers going at it at the same time. Having said that, I should point out that the last time we did have around 600 plants to get through. That was a bit over the top; it was also just a try out. Thanks to the lovely autumn we were able to harvest in three slices. First the crown buds, and then working from the top downwards. It was simply a question of each day taking a walk through the field and snipping off only the ripe buds. As long as the weather allowed us to, at least.

Just before the planned harvest I take a close look at the plants to see how ripe they are. The riper the better. I have been known to be dumb enough in the past as to harvest too early, but of course I do have take account of the weather. If I hear on the forecast that there is expected to be

a period of rain, with a week of 80-90% chance of rain, and the buds are already pretty well ripened, then I just gather them in.

You should never bring your buds in if it is wet weather. If the buds are full of water then I guarantee that at least half of your harvest will rot. And this happens quickly; within just a couple of days it’ll be gone. If I think it’s going to be wet for a couple of days and they still need a short while, then I usually gamble on leaving it until a sunny period afterwards. The last week of September, the first week of October are the most favourable weeks in which to harvest. When this time comes around, it is incredibly busy. Then the whole village is busy trimming.

I don’t just check to see if the little hairs are already brown, but also at whether the seed cases are ripe. If the Purple has been allowed to really ripen well, then I reckon there is not better outdoor weed around. Then it can be almost black. I do not know exactly what the percentage of Sativa and Indica this variety contains. That is a secret that the breeder of the original let me in on.

Theft and industry

What you also have to take account of when growing outdoors is the theft of your almost-ripe buds. We had a lot of trouble with this in the year just gone. When we began here growing outdoor weed, only the people in the immediate vicinity knew about it. But in the ‘weed world’ it often goes that as soon as a few people know that weed is being grown somewhere, then half the world soon knows it too. I’m talking mainly about people from the big cities. And not just those around here, such as Eindhoven, Nijmegen and Den Bosch, but people even make their way from Arnhem in to the countryside to take a look around and see if they can uncover a few fields. Then they return for the almost ripe buds.

Holiday makers from Amsterdam for example are also involved in this. They only come here in the Summer and spend their weekends sitting around on a camping site. This is something we never used to have to deal with, and we are getting a bit pissed off with it. Criminality goes up because of it. Out here in the sticks we want to keep the weed trade nice and relaxed, without any hassle. The kids from round here do not go pinching buds. Their dads or mums often have a patch of their own, so they can get hold of their weed from home.

We are also getting problem with industrial-scale weed. This is going to be the biggest single problem in the future. A couple of village down the road have got a couple of hectares under this industrial stuff. Despite being a good ten kilometres or so away, we can notice it here. Sometimes when there is a south-easterly wind blowing, several fields here in this area get pollinated by the male pollen. It just has to blow once in the wrong direction and your plants end up only producing seed. In Eindhoven and even as far as Den Bosch they’re having to deal with this. The weed is no longer sellable, there’s so much seed in it. We are the only growers who so far have managed to stay reasonably seed-free.

You should never bring your buds in if it is wet weather. If the buds are full of water then I guarantee that at least half of your harvest will rot.

recognise from the sky as a weed plant. For as long as it lasts at least. We can always hang artificial roses among the plants as it gets close to harvest time.

Growing weed outdoors is in itself not a source of great stress. You put the plants in and you then have pretty much nothing more to bother about. So long as you prepared the soil in advance a bit, to get things just to your plants’ liking.

The real work starts again in autumn: the harvesting, the drying and the trimming. You have to keep a close watch on the weather and the various weather stations during autumn. Once I

were great too. These are the kind of conditions that lead to a marvellous, ripe weed. But we do still get bad years and then the weight of the weed is negligible.

‘Powerplay’ and especially the ‘Double Powerplay’ is sacred to us. This plant is to my eyes the variety with the best resistance to all kinds of sickness. The result is always perfect and above all it is a plant that you can harvest before most other varieties – it’s ready by the end of September, mid-October or even later. I find it better than any other variety and I have tried quite a few in the 20 years that I have been growing.

The soil

It is really important where exactly you live in Holland. Where we live happens to be really good. We are located on sandy ground, on the moraine of a prehistoric glacier. It is a sandy spit with a layer of loam under it. That sand has the same structure, composition and deficiencies as the plant is used to in nature. Actually it is heath land. Once it was all heath here, but that has been ploughed up and made into agricultural land. It is by nature pretty infertile soil. When we plant new weed plants in the sandy soil, in a patch of earth where there has never previously been weed plants raised, then in the first year you should do nothing to it. Do not fertilize, nothing, and then the plant will always do best.

The worst thing in the whole growth cycle that you can encounter is that the soil becomes really dry, and that you have to give them water at the beginning. On top of the nutrients present they also get a lot of nutrition

and at the same time make new mother plants. From these plants we eventually take the clones we need as well as those we share with a couple of other farmers. We plant these around mid-May outdoors.

If you want to grow for several years after each other in the same place then you have to make sure that the soil is adequately compensated. Your soil gets increasingly depleted of nutrients so you have to process the soil and enrich. The best way is actually the classic way, fresh cow dung spread over your growing patch before the beginning of winter. I am fortunate in having a stall with a few goats, chickens and pot-bellied pigs. I mix their manure up with some bird guano that I get from a couple of friendly pigeon fanciers, and then just leave it to ferment. Preferably for three years, so that it breaks down nicely. Look, you have to look at it as everything that I fertilize today is not going to do its good work until a year later. That changes the structure and the biological life of the soil. The ground

Take the used-up soil from indoor grow-ops, either by your or friends who grow indoors, and dump it over your garden. Add a bit of lime and blood meal and you have the perfect soil.

out of the air. We try to not give them any water at all. Only in the first two or three days, just until they get a good start. As soon as you can see that they are going to make it, don't give them any more water. Even if they look as if they might be a bit short, just let them get on with it, because then they will be nice and busy sending out roots to go look for it. The deeper the better. This is what produces the loveliest plants. The roots go off in search, they are active and go deep in to the ground.

The main tap root gets into the loam layer, which is usually found at a depth of 50 to 80 centimetres. This loam has such a compact structure that water is trapped here for a long time. With many other soil types this is not the case, and water runs easily away, so that in a dry summer you are forced to give water to your plants. Luckily we have that loam layer, which works as a buffer. Loam is even finer than clay and has the same buffering qualities as regards nutrient salts. As well as this loam holds water for longer than clay for example or just sandy soil alone. Of course, you don't want too wet a summer though, otherwise the water has trouble running off. Then you get puddles lying around on the surface, and this is not good.

Clones

I do not use seed; only clones. We keep the mother plants during the winter in a greenhouse round at a friend's place, where we use extra light to create a constant 18 hours of sunlight each day. They need that in order to be able to remain in the vegetative stage. Then we also know that soon after winter the whole field is going to be filled with female plants. We don't need to do any further checks on them. At the end of the winter we clone the mother plants

becomes more grainy, and just better for the purpose we have in mind..

Another possibility is to take the used-up soil from indoor grow-ops, either by your or friends who grow indoors, and dump it over your garden. Add a bit of lime and blood meal and you have the perfect soil. What I also use sometimes is osmocote, a total fertilizer used in the garden industry that works for a good five months. This is a granule that lets its nutrients slowly dissolve, with nutrients in a 14-9-15 NPK ratio. It's very good for using when making up the soil for tub-grown plants, for weed you want to grow on a balcony, for example. But not for indoor growing, because the majority of the nutrients will only become available when the indoor plant does not actually want any more nutrient, after eight weeks of bloom and shortly before harvest time.

Nor should you use dry cow dung, not directly at least. It's fine to use as a preparation for a nice garden next year. Or for the years thereafter, because it will be a good five years before it has been totally removed from the soil. Then the fresh cow dung is actually a bit better for being taken up immediately thanks to the presence of urea (urine). The best option then is to mulch your garden in advance in order to avoid having to add extra nutrients during the growing process. Then you can pretty much leave the plants unattended for the whole summer. If you do it well, you will end up barely being able to squeeze through the plants even with one plant per square meter. Just let nature take her course.

After the harvest, I first of all leave the ground to rest for a while and just do nothing. In November, December I rake it totally clean and spread some

manure around over it. Preferably I'll leave the roots from the previous crop in the ground too, for the nitrogen, but because of the annoyance of legal evidence we no longer do that any more. In the spring I give the soil a good turning over. Then it is clear how nice and granular and healthy it is. Sometimes I toss some pigeon guano around for the large quantities of lime it contains. That keeps the soil nice and neutral. The majority of weed farmers, if they want to go the whole hog and really do things right, spread calf manure, cow manure and horse manure together. Everything from a dairy farm. My brother also experimented for a couple of years with digging rabbit droppings into his garden. His plants were more than three metres high! Thanks to the high concentration of nitrates they shot up like rockets. We had to saw them down! Except the buds also grew upwards in the air and so the eventual harvest was sadly no bigger than usual.

Pots

For pots on balconies in the city it is of course a bit harder to make use of the pungent brown gold from a dairy farm. So too guano, whether Peruvian seagull poop or bat shit, can stink quite badly when it is used. In order to fill your pots you can more easily use the complete mixes from the grow shop, or even put together your own recipe based on compost made for geraniums or a compost that you dilute by a couple of percent with clay mixed in to it, or an ordinary compost with clay and some lime mixed in to get a neutral pH of 6.8 to 7.0. In order to get relatively good plants then the contents of the pots must be of 20 litres or more. The bigger the better also applies in this case. A cement tub is ideal. Do make sure that whatever size you use it has good drainage, by for example filling the base with hydrogranules or Perlite. Your babies will not like wet feet at all. They don't like it in the countryside and they won't like it at your place in the city either.

Double Powerplay is actually a very easy cloner, certainly when grown on soil. Particularly with clones, the plant reacts better to soil than rock wool. The rooting takes place twice as fast. Certainly when there's a dry spring you can run into problems when using rock wool because the moisture from the rock wool is sucked into the soil rather than vice versa. What's 's more the plants just take off quicker, which can quickly make up a week's difference. It's as if the rock wool plant has



difficulty in getting used to the soil. You can get very nice clones off the mother plant, but sadly not many of them.

I prefer to plant the clones in the wind. Between the rows in maize fields is ideal. Both the planting and the harvesting of the maize take place at the same time as the weed. By the constant movement of the wind, the roots develop a good firm grip and you get a nice sturdy plant. The plants are woodier, and it does look as if they are better able to fight off diseases as a result. An additional advantage is that the plants, especially in spring, have all their moisture dried off them thanks to the blowing of the wind through and around them. This of course gives moulds less chance of establishing a foothold.

Yields

The yield varies. If the plants stay short, are put in late, and the summer is a bit dry throughout, then you have to reckon on about 180-200 grams per plant. That is actually very poor. But if everything works well during the summer you can easily count on double that. I reckon 500 grams a plant is possible. Certainly if you give the plants a bit of space. At the most one plant per square meter, but preferably one-and-a-half square meters per plant. Actually it's the same story when growing indoors. If you give them enough soil, it'll turn out right.

The loveliest plant that I ever had gave me 750 grams of fantastic weed. In general, you can reckon on, with a bit of knowledge and understanding of the soil and your garden, getting 400 grams off each plant without any problem. On a balcony it is certainly possible to get 100 grams per plant. At least, if you take it a bit seriously that is. But whatever the pot, tub or vat you choose to use, it can never be as marvellous as the yields you can get off growing in real earth. That has, I reckon, mostly to do with the moisture-holding qualities of the soil. You simply can not imitate that. The self-regulation of the plant is maximised by this ability.

The best thing you can do is take a sample of the soil in your garden., before you are due to set out on your grand, hemp-growing adventure, and have it analysed at a laboratory in order to know how things sit in your garden and what you can expect in the coming years. Not everyone is so fortunate as to have such good soil in their plot. Now there is something I believe we have been very lucky with."





Spider Mite problems?

Spray Safe from Canadian Xpress Real dead real fast! At last a truly effective 100% organic spray that will kill Spider Mite on contact. It works by dissolving the spider mites hard outer coating and will kill them in less than five seconds flat! This is up to 30x faster than chemical pesticides. It has no withholding period,

leaves no sticky residue on the plants leaves and can be used right up until the last week of flower. It will also kill the eggs. This really is the fastest and most effective spray of its kind. Use undiluted.

Also kills, Whitefly larvae and Aphids.
Available from www.progrow.co.uk and all good grow shops!
Tel.: 0044-1392-276998.

NEWS FROM THE UKCIA

Barbados: Leniency regarding cannabis causing conflict

The fact that cannabis offences are treated with more leniency than those related to other narcotic drugs is leading to the public's confusion with regards to this drug.

According to the 2006 World Drug Report of the United Nations Office on Drugs and Crime inconsistent messages about the abuse of cannabis is leading to confusion within the global community.

“On the one hand cannabis is controlled with the same degree of severity as heroin and cocaine under the Single Convention on Narcotic Drugs, 1961. Virtually every country in the world is a party to that Convention. On the other hand, however, cannabis offences are treated far more leniently than those related to other narcotic drugs in many countries. A conflicting message is thus sent to the population and it is no wonder that public opinion becomes confused”, the report said.

It outlined that cannabis had been allowed to fall into a “grey area”, stating that while it was technically illegal but widely de-prioritised, it has grown in popularity outpacing others while at the same time enriching those persons willing to break the law.

“A global blind-spot has developed around cannabis”, it stressed, adding that the plant had been transformed to something more potent than it had been in the past. According to the report, the world had to come to terms with cannabis, the world's most popular illicit drug with an estimated four per cent of the global adult population using it every year; more than all other illegal drugs combined.

It further said that with regards to the mechanics of the market, this drug was the least understood as in contrast to drug crops like coca and opium poppy very little was known about the extent of cannabis cultivation around the world.

It noted that only a few governments could give a confident estimate of the scale of cultivation in their own countries pointing to the difficulties in ascertaining the information, including the fact that the drug can grow almost anywhere, both outdoors and indoors.

Political attitudes reflect popular perceptions that cannabis was different from other controlled substances, the report continued while outlining that cannabis production was on the rise.

Date: 20/07/2006 // Source: Barbados Advocate

Britain Goes After Medical Marijuana Suppliers

In two separate trials, one beginning this week and one beginning next week, British authorities are prosecuting medical marijuana providers under the country's drug laws, the Guardian reported. The continued prosecution of medical marijuana providers comes despite the government's downgrading of marijuana from a Class B drug to the less serious Class C in 2004.

Four members of Therapeutic Help from Cannabis for Multiple Sclerosis (THCforMS) faced charges of conspiracy to distribute marijuana this week in crown court in Carlisle. THCforMS supplies free cannabis exclusively to MS sufferers and says on its web site it has handed out 33,000 cannabis chocolate bars to patients.

Next week, Bud Buddies founder Jeffrey Ditchfield goes on trial in Mold crown court on nine counts of cultivation and distribution of cannabis. Bud Buddies offers a number of marijuana preparations for anyone with a proven medical need and requires documentation of that need from a physician.

Under current British marijuana law, all of the defendants mentioned face up to 14 years in prison.

Meanwhile, life has become more difficult for as many as 30% of British MS sufferers who use the herb to alleviate the pain and spasms associated with the disease. One of those patients, who asked not to be identified, said she had applied to use the marijuana tincture Sativex on a trial basis, but was turned down. The preparation is currently undergoing a three-year trial. “I find it inconceivable that the crown sees these prosecutions as in the public interest when there is still no legal way for the people who are helped by cannabis to obtain and use it,” she said.

The British Medical Association said in a 1997 report: “While research is under way the police, the courts and prosecuting authorities should be aware of the medicinal reasons for the unlawful use of cannabis by those suffering from certain medical conditions for whom other drugs have proved ineffective.”

Even if the crown prosecutors don't get it, some trial courts do -- or at least they did. Up until last year, medical marijuana patients and providers successfully raised the “necessity” defense, which allows illegal acts to prevent a greater harm. But an appeals court ruling last year held that the “necessity” defense did apply to the use of marijuana to relieve chronic pain.

Date: 21/07/2006 // Source: Drug War Chronicles

Moroccan province destroys 1000 hectares of cannabis

Close to 1 000 hectares of cannabis grown land were destroyed in the region of the central-north town of Taounate, Morocco, part of the banned plant eradication campaign conducted by local authorities in June, a press release of the Taounate province said.

The campaign was carried out in non irrigated lands of the Taounate and Rhafsaï districts, located close to the provinces of Al Hoceima and Chefchaouen, by troops, rural police (Gendarmerie) and other law enforcement agents and relevant departments.

The fight of cannabis growing is made in the prospect of making of the Taounate province a region free of the banned plant. Eight farmers were arrested during the June campaign for growing the plant, the press release adding some 770 others are wanted for the same offence.

Taounate province authorities also made efforts to find alternatives to the plant in raising awareness of the dangers of the banned substance and in incepting socio-economic substitution projects.

The authorities handed over some 600 000 saplings of carob, olive, almond, pomegranate, fig and plum trees to replace cannabis.

The province is planning another campaign in early August and is to focus on irrigated land of the Oued Aoudour, Tafrant and Rhafsaï regions. It carried out other eradication campaigns in 2004 and 2005 that helped cut down the surface grown by 43%.

More than 2 940 hectares of cannabis were destroyed during the past season, including 2 590 ha in Rafsaï region and 352 ha in Taounate region. The province benefits from the Millennium Challenge Account support for tree planting, animal husbandry and irrigation.

Date: 21/07/2006 // Source: African News Dimension

Malaysia: 10 years and caning for having drugs

MUAR: A former Politeknik Ungku Omar student was sentenced to 10 years' jail and ordered to be given 10 strokes of the rotan for possessing 960g of cannabis three years ago. Mohd Rakif Saidi, 23, who was brought to the High Court here and charged under the Dangerous Drug Act, pleaded guilty before Justice Datuk Jeffrey Tan yesterday.

He was arrested by a police team along Jalan Parit Othman, Parit Sulong, on May 15, 2003. Mohd Rakif, who was riding a motorcycle along the village road, had tried to speed away when he saw a police team from the narcotics branch but was stopped.

Police found two packs of cannabis wrapped in newspaper in the motorcycle basket and detained him.

After Mohd Rakif pleaded guilty, counsel Daud Asmoni asked the court for a lenient sentence, saying his client, who was 19 years old then, was a first offender.

However, deputy public prosecutor Haslinda Abu Bakar pressed for a deterrent sentence, saying the crime committed involved a dangerous drug.

She said Mohd Rakif was very lucky that the prosecution decided to drop a more-serious charge of drug trafficking as he was arrested while transporting the drug.

Date: 21/07/2006 // Source: Malaysia Star

UK: Depressed pupils turning to drugs

MORE than 70 per cent of depressed and demotivated schoolchildren in Ipswich are using cannabis, new figures revealed today.

The revelation comes on the same day that it was revealed that cannabis crime has soared in the UK since laws on the drug were downgraded.

Nationally drugs offences recorded by police have risen by 23 per cent to 178,500 in one year, mainly due to an explosion in official warnings for carrying cannabis - up from 88,000 to 120,000.

Before the drug was downgraded in 2004, those who were given official warnings would have faced arrest and possibly jail.

In Ipswich, the scale of the problem was discovered in a survey of those excluded from school, attending pupil referral units or being helped by youth workers.

In excess of 130 children were questioned over a six-month period about the use of cannabis.

Following the findings Ipswich has now organised its first-ever Health Jam event to in a bid to deter teenagers from using the drug.

The event, which is to be held on the Cornhill from 10am to 2pm next Wednesday, will strive to get the hard hitting message about its dangers across in light-hearted way.

A spokesman for Ipswich Borough Council said: "Between September and December 2005, there were 13 calls to the ambulance service in Ipswich for 'overdose' relating to cannabis use. This was more than for any other illicit drug during this period.

"The survey targeted 132 of Ipswich's most vulnerable young people, and the data suggested that the majority were using large amounts of cannabis, on a frequent basis, and smoking the stronger strains, which contain more of the active ingredient THC.

"Many of these young people reported feelings of anxiety, boredom and depression, which appeared to be symptomatic of a completely de-motivated lifestyle.

"Other features of this lifestyle included a poor diet and a lack of participation in sports, and complaints from close acquaintances and partners about the users' constant intoxication."

Brian Tobin, project manager for the Icen Project, which helps rehabilitate drug addicts in

Ipswich, said most of his clients attributed their drug addictions to the use of cannabis in their teens.

To make matters worse, today's society is also blighted by a stronger strain of cannabis than in the past.

Mr Tobin said: "Cannabis is firmly entrenched in our society. The difference between 20 years ago and now is the strength. Most of it is cultivated as home-grown. That produces greater strength than herbal cannabis or cannabis resin. It is around twice as potent as it was.

"The scientific evidence that is coming out now indicates if you do smoke cannabis regularly you are likely to exhibit mental health problems."

Demotivation, paranoia and depression are often seen to be a mainstay of users' lives.

Mr Tobin said: "We have seen a lot of youngsters who lose their educations and livelihoods because they can't be bothered to go to school. They are smoking it day in and day out. People become dependent on it because it makes them feel normal and gets them through the hurly-burly of life.

"We have got to get out of this thing where people say it's harmless because it's not."

THE poll in Ipswich echoes national concerns about the association between cannabis use, mental health, and other cognitive and motivational impairments.

Among the symptoms are impaired work performance, lower self-esteem, depression, and social withdrawal.

The Health Jam event will be a high-profile multi-agency one. Its aim is to help provide healthy alternatives to a user's lifestyle.

Tibbs Pinter, Ipswich Borough Council's substance misuse officer and the event's organiser said "It's time to take responsibility and rally members of the community to support one another in developing a safer and healthier Ipswich.

"A key focus of this first Ipswich Health Jam is to encourage and celebrate principles of healthy living in order to promote alternative choices to smoking cannabis."

At least 14 different groups and anti-drugs agencies will be taking part in Health Jam. It has been designed as a celebration of youth encapsulating a range of activities including sports, music, information, advice, and healthy eating.

Date: 20/07/2006 // Source: Evening Star, Ipswich

Australia: Marijuana Abuse Responds to Psychotherapy, Overall Is

Marijuana Abuse Responds to Psychotherapy, Overall Is Hard to Treat

Newswise — Marijuana dependence and abuse can be moderately improved by various psychotherapy treatments — but reduced use rather than abstinence may be the best clinicians can hope for at this time, a new review finds.

One-on-one cognitive behavioral therapy (CBT) is most effective, but other counseling approaches also help users to cut down or improve social problems associated with their marijuana use.

Dr. Marc Auriacombe of the Addiction Research Group at the Université Victor Segalen in Bordeaux, France, and colleagues analyzed results from studies of 1,267 people who received no or delayed intervention, motivational enhancement therapy (MET), family therapy, CBT or combinations of these for marijuana abuse or dependence.

The researchers measured outcomes such as abstinence from marijuana (cannabis) use, improvements in family and social problems, other drug abuse and continuing treatment to assess the various approaches.

"The six studies included in this review show that cannabis dependence is not easily treated by psychotherapies in outpatient settings," the authors write. "Cognitive-behavioral therapy both in individual or group sessions and motivational enhancement in individual sessions has been demonstrated to be effective to reduce cannabis use."

The review appears in the current issue of The Cochrane Library, a publication of The Cochrane Collaboration, an international organization that evaluates medical research. Systematic reviews draw evidence-based conclusions about medical practice after considering both the content and quality of existing medical trials on a topic.

Because the researchers compared studies with varied interventions and timelines, they didn't perform a meta-analysis that measured the overall results, and so did not provide overall comparisons across studies. But they found improvements in different measures of patients who received some type of psychotherapeutic interventions, especially CBT. Among these:

--In the study of 450 users that showed the greatest benefit of CBT, marijuana use was lower for those who received sessions of CBT or MET, and at four months, 22.4 percent of those in one-on-one CBT intervention had been abstinent for the previous 90 days compared with 8.6 percent of those treated with MET.

--Another study of 212 users showed those who received CBT or social support had a reduction in marijuana use throughout the post-treatment follow-up period and at 12 months; about 14 percent reported abstinence from marijuana use and 19 percent reported use at 50 percent or less of their pretreatment levels.

--A smaller CBT-MET study rewarded users for staying clean. Some of the 60 participants received vouchers exchangeable for retail items contingent on them submitting negative urine specimens. However, results showed no clear benefit with either treatment, although participants who received vouchers were more abstinent than those who did not.

CBT emphasizes the role of how people think, rather than external influences, in causing negative feelings and behavior, and encourage patients to make positive changes. MET seeks to enhance motivation for behavior change by working with and resolving ambivalence, while family therapy focuses on changing the interaction patterns within a patient's entire family.

New drug therapies may be needed to help abusers who don't respond to psychotherapy, according Auriacombe.

"The high relapse rate and number of cannabis dependent individuals suggests the importance of developing pharmacotherapies for patients who may be less responsive to other treatments," Auriacombe said. "In general, the problem in treating cannabis-dependent individuals has been less that of treating and more of preventing relapse."

In terms of the improving low abstinence rates, Auriacombe said, "Alcohol research has suggested that the therapeutic effects of pharmacotherapy and psychotherapy may be synergetic, with the greatest treatment efficacy seen when medications are combined with psychotherapy." He said that similar combinations "may prove optimal in the treatment of cannabis dependence."

People often fail to notice that a friend or neighbor has a marijuana problem because the consequences of cannabis use are less striking than those associated with other drugs, according to Dr. Alan J. Budney of the University of Vermont's Treatment Research Center. "You don't see the severe acute consequences you get with alcohol or cocaine," Budney said.

According to the United Nations Office on Drugs and Crime, marijuana is the most widely abused drug in the world.

Denis C, et al. Psychotherapeutic interventions for cannabis abuse and/or dependence in outpatient settings (Review).The Cochrane Database of Systematic Reviews 2006, Issue 3.

Date: 21/07/2006 // Source: newswise

Police to target cannabis factories

A national police crackdown on illegal cannabis factories has been launched.

The operation involves close to 20 police forces in England and Wales and is expected to last for two weeks.

Cannabis factories will be closed down by police and the criminal networks who run them disrupted and dismantled.

The Association of Chief Police Officers (Acpo) is expected to announce further details of the crackdown later on Monday.

Alan Gibson, Acpo's lead on cannabis cultivation, said: "Cannabis cultivation is an increasing problem which must be nipped in the bud.

"This operation will see police closing cannabis factories across the country, arresting those concerned and using the Proceeds of Crime Act to attack the criminal profits being made.

"Cannabis cultivation is seen by criminals as a low risk, high profit industry, but this operation will send out a clear message that cannabis production is a serious offence and that offenders will be brought to justice.

"Not only is the money from cannabis cultivation ploughed back into serious crime, but the bypassing of the electricity needed to run the factories causes risk of fire and electrocution and they have already caused several devastating fires."

As part of the operation, police are expected to ask the public to look out for telltale signs of cannabis factories being run from properties in their neighbourhood.

These include the windows of a property being permanently covered, gardening equipment left outside or a pungent smell emanating from inside.

Date: 25/09/2006

Source: The Guardian

Norwich Police raid cannabis farm

Police today revealed they were stepping up their fight against large-scale cannabis factories after discovering drug barons are using homes in the county solely to grow the plant.

Norfolk police are among 20 forces taking part in a national crackdown on the drug producers and called on the public to tip them off about houses which have been given over entirely to growing vast amounts of cannabis.

It emerged today that just last week police raided a three-bedroomed home in St Martin's Road, Norwich, where they found 400 cannabis plants being grown with a street value of tens of thousands of pounds.

Three Lebanese men were arrested and two have been charged with conspiracy to produce drugs for supply.

As part of the operation, codenamed Atone, police are asking the public to look out for telltale signs of cannabis factories being run from properties in their neighbourhood.

These include the windows of a property being permanently covered, gardening equipment left outside or a pungent smell coming from inside.

Detective Inspector Tony Deacon, of Norfolk police, said: "This is a message going out to the public to give us information on where these premises are being used to cultivate large amounts of cannabis.

"What we are targeting are the people who are more organised in carrying out these criminal activities. The emerging picture coming from the Metropolitan Police are that people are letting premises solely to use to produce cannabis and we are now seeing that picture emerging in Norfolk.

"We have had one or two examples where we have raided places which fit what we are looking for."

Det Insp Deacon said the information Norfolk police was after from the public for this operation was about the large-scale criminal producers of cannabis, not details of people who just grow one or two plants for their own use.

Posters and postcards were today being distributed around the county urging the public to pass on information about homes given over for cannabis cultivation to the police.

The operation will initially last for two weeks but Det Insp Deacon said it could last longer, depending on the intelligence the police receive.

Date: 25/09/2006

Source: Evening News, Norwich

Police launch operation to close cannabis 'factories'

A nationwide crackdown on cannabis "factories" has been launched by police alarmed by figures showing that the high-strength "skunk" variety of the drug now accounts for 60 per cent of the UK market.

An operation involving 17 forces in England and Wales will run over the next two weeks with the aim of closing hundreds of cannabis cultivation units, ranging from vast warehouses on farms to terraced suburban houses crammed with plants, and disrupting the crime gangs behind them.

Skunk contains far higher quantities of the chemical THC than herbal or resin-based cannabis

The growth of skunk, which has overtaken more "traditional" herbal or resin cannabis, has accelerated over the last six years.

Skunk is significantly more profitable, selling at up to £120 an ounce, compared to up to £70 for herbal and up to £50 for resin.

British gangsters are heavily involved in "hydroponic" cultivation of skunk - growing plants in secluded warehouses using liquid nutrients.

The largest warehouse raided by police contained 20,000 plants worth £8 million.

In recent years there has also been an explosion, particularly in London, of small-scale factories in residential homes, in which many hundreds of plants are grown under intense light powered by electricity illegally and dangerously diverted from the mains supply. There have been a number of fires. This area is dominated by Vietnamese gangsters using illegal "trafficked" workers.

Police identified at least 700 cannabis factories in London alone last year and there is clear evidence that the skunk trade is expanding across the UK, leading to the operation coordinated by the Association of Chief Police Officers (ACPO).

Skunk contains far higher quantities of the chemical THC than herbal or resin-based cannabis. In the mid-1990s only around 10 per cent of cannabis in the UK was believed to be skunk.

But the percentage in the last 10 years has spiralled to 60 per cent of the market, a calculation based on police seizures.

The growing consumption of skunk will fuel the debate over whether the decision to downgrade cannabis from a Class B to a Class C narcotic in 2004 was appropriate for a new form of the drug which can be between four and seven times stronger than traditional "dope" - and whether the decision had contributed to the growth of skunk.

Concerns have been raised about the health effects of skunk - particularly in those with some types of mental illness - and its potential to become more of a "gateway" than herbal/resin cannabis to harder drugs.

Gangsters are thought to consider cannabis dealing to be a "lower risk" than dealing in hard drugs but police chiefs argue that cultivating and trafficking cannabis can still attract sentences of up to 14 years.

Date: 25/09/2006

Source: The Telegraph

Suspected cannabis factory uncovered in east Belfast

Police in east Belfast have uncovered a suspected cannabis factory following the search of a property in the area yesterday afternoon.

During the raid at the house in the Albertbridge Road area of the city, police recovered 35 mature cannabis plants, and other paraphernalia.

A 26-year-old man was arrested at the scene for the cultivation of cannabis with intent to supply.

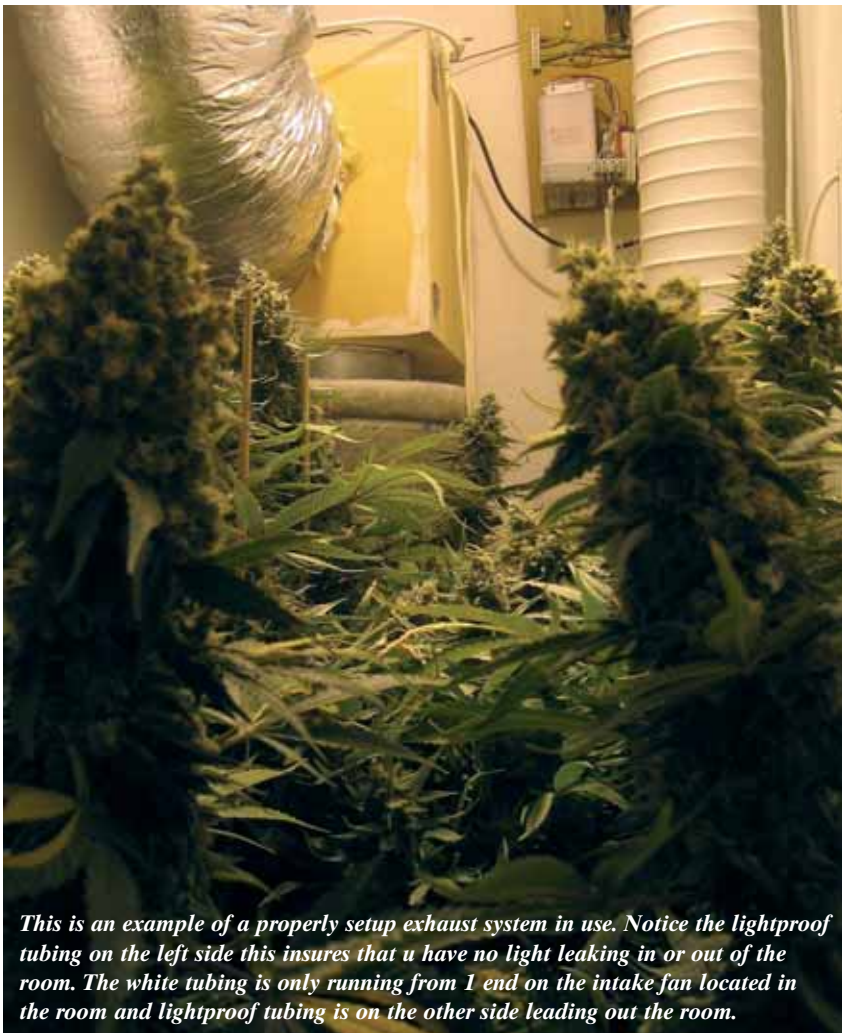
Date: 28/09/2006

Source: Northern Ireland News

Watering for beginners

By Crash

Watering your plants as a beginner can be an unexpected source of problems. This can be the hardest step into growing your favorite plant on a big or small scale. For as long as I have been growing and mostly all the people I have talked to about growing have all had the same problem in the beginning.



This is an example of a properly setup exhaust system in use. Notice the lightproof tubing on the left side this insures that u have no light leaking in or out of the room. The white tubing is only running from 1 end on the intake fan located in the room and lightproof tubing is on the other side leading out the room.

In my experience I have found that the first few days that you start to water can be very important for your plants. If we water too much then we can cut all the air & oxygen going to the roots of the plants and if we water too little then we run the risk of drying out the roots. There must be a balance between water and air below the surface of the soil most new growers will water far too often never letting the soil go through a wet and dry cycle to exchange air & oxygen into the soil and roots. Most books and videos I have seen and read have mostly always watered with around 10 % to 15 % coming through the drain holes. In my experience this can be far too much water especially in the beginning few weeks. The best success I have is when I use less water in the beginning and build up the levels as the plants grow. This way the soil has plenty of oxygen for roots and you avoid water logging the soil from the very beginning. Water logged soil is over saturated soil with water and lacks the air & oxygen needed by roots for strong vigorous growth.

Now an example:

Let's say you use a 2 square meter setup with 2x 600w lights for the two square meters. If you use an overkill exhaust system (700 m2 in take and 1400 m2 out take with a 1 meter carbon filter) this will insure everything stays at the right temperature in the warm months and allows you to run at reduced power

in the colder months.(A good solution if you have heat problems in the warmer months) A good average watering cycle in the first week with clones is from the day you plant them you will be giving 200ml of water every day .If a plant or 2 look's like it needs more water then you can add a little more (25 to 50 ml) to the rooting cube this will carry the plant over until the next day. In this system it's good to try to water around once every 24 hours this way we can fine tune the water cycle and avoid watering problems. This also allows us to spend a small amount of time with the plants every day so we can check for pests and thing's like light burn and check the area is nice and clean. From week 2 you can be using from 200 to 300 ml of water depending on how fast the soil is drying out and how the plants are looking. The following weeks as the plants grow bigger you will slowly be adding more and more water. From 300ml to 400ml in weeks 3 and 4 and to 500ml to 600ml in week 5 and 6 all the way to an average of 700 ml to 800ml a day towards the end of the harvest. You should really be checking the top 5cm of the soil and looking at how the leaves are reacting on the bottom of the plant. When a plant needs water the first signs are wilting leafs at the bottom of the plant. Watching this is a good indication of when you need to step it up a bit on your water amounts. Signs of over watering are a bit trickier to spot too the untrained eye not really knowing what to look for. Some grower will lift the containers and

feel how heavy the plants are before and after watering. This allows the grower to return and feel the difference in the weight of the containers. Heavier containers will not need as much water as the lighter containers. This can be corrected by giving the heavier containers a little less water so the other plants can catch up.

Now this is how this room has been tuned to water. Remember all rooms can be different depending on soil, lights, ventilation, plant strain, container size and many more factors.

Here are a few of the examples.

1. Container size. The bigger the container the bigger the roots can and will become. When u have small plants in big containers (11 liter) will use water much slower then a 2 foot plant in the same 11 liter container. Big plants in smaller containers will use the water much quicker as there is smaller volume in the container for the roots. So a bigger root system = The more water the plants will need. I like starting my plants out Right into the 11 liter pots. This way the plant has plenty of room right from the get go, and there is no transplant shock as we handle and move the plants from small to big containers.

2. Light. The amount of light you are running in a room can have a big outcome on your watering times and amounts. The more light you run the more the plants are going to need water. This is because the plants are taking in more light and growing at faster rates. Also more water is being evaporated into the air and being drawn out of the room faster from the soils surface. In less light rooms or rooms with a bigger area (say a 2 square meter grow area in a 10 square meter room) there is more air in the room not being heated by lamps so it tends to stay a bit cooler with good ventilation. When working in a smaller area and using the whole area it is a good idea to run an exhaust system that is stronger as this will ensure that even in warmer months the system can handle the extreme heat being made by the lights.

3. Soil. The type of soil you use will have one of the biggest effects on watering. Always buy the best soil you can find. Never buy cheap crappy soil this is where your plants will be developing and will be supported. This is the # 2 biggest mistake made by beginning growers. I have had really bad luck with soils that are heavily fertilizers manly due to root burn and stunted growth in the first 2 weeks. My best success has been with a light mix this soil is ideal for gardeners who want to have control over the growing process through the use of liquid fertilizers. It has been only slightly fertilized to ensure the fast development of roots for healthy new growth as where All mix can be far to strong for seeds or clones and have been know to cause root burn or over fertilization and this is not what we are after in the beginning weeks of growth.

4. Ventilation. This in its own rite is a very important subject. Without proper ventilation our plants will have a hard time breathing and transpiring water from the leaves into the air. This is because of the high humidity levels present in the room and around the plants. The humidity in the room will rise and this can cause big problems in the later stages of flowering as the plants will have no way to exchange the used air around them and can lead to bud rot at the final stages near harvest. When we run a room with proper ventilation we are constantly exchanging all the used air and humidity in the room with fresh air and the plants will need this for healthy and vigorous growth. When we are exchanging the air and removing the humidity from the room at this rate we are also removing more water from the plants. In this was we can affect the amounts and rate that we must water the plants.

So in conclusion when we are watering our plants there are many factors that must be looked at to find the perfect ways to water your room with the main factor being over and under watering. Remember every room is different: air, light, soil, container size, plant strain, and room size plus many more factors go into making you room work for you. Not every room will run smooth and perfect from the very beginning you will need to fine tune everything so it works with your style of growing.



This is a prime example of two over watered plants. The two on the right side were watered heavy on day one and left for 1 week before they needed water again. And the four on the left have been given small amounts of water throughout the week and have grown much more vigorously. You can clearly see the lack of growth on the right two plants.



This is a perfect example of a plant is asking for water . Notice the bottom leaves are hanging down also know as wilting or drooping. This is very quickly corrected by watering the plant or by adjusting the water amounts.

Ecological Cannabis Growing

By lazystrain

Today we live in a consumer society. This means that when consumption outstretches demand we end up wasting materials and resources. A main resource, which many indoor gardeners take-for-granted, is electricity (another is water but we'll save that for another issue). Various charities and organisations in the UK like to remind people that energy efficiency is both beneficial to the environment, and a sustainable way of living within our means. In this article we shall consider the present ecological implications surrounding homegrowing in the UK.

People like to think that homegrowing cannabis is an ecological pastime. That they are somehow aiding the environment, and so on... This is an urban myth! Firstly, we must make a clear distinction between 'outdoor' and 'indoor' cultivation (they aren't the same thing!) Outdoor, the ecological benefits of organic cannabis farming are visible for all to see. Cannabis plants, grow quickly, provide shelter for wildlife, consume large amounts of CO2 and throw out lots of Oxygen in return. Outdoor cannabis finds semblance within Nature. Indoors however, when a growing area is bought into an artificial environment, the parameters of what ecologists term "ecology" becomes somewhat stretched.

The mathematicians might want to snatch a calculator and/or a pen and paper at this point. An average indoor garden (if there is such a thing) uses anywhere between 200 and 1500 watts of electricity for a 12hour period during its bloom cycle. Anyplace between this figure in cycles of 18 or 24hour veg. As we start to add up the kilowatts of energy expended by indoor gardeners within the UK, we realise just how inefficient cannabis growing can become. Since levels of inefficiency are usually measured against an overall target, this means there is always room for improvement.

Finding the right balance between levels of 'consumption' and levels of 'production' is the key to efficiency (and ultimately gardening success). Anyone

can keep throwing extra kilowatts of electricity into a grow room, in the hope that it might increase the overall yield, and in many cases it will, but at what cost? If/when the costs of a room exceed the crop-return, something might be wrong. Not only is it possible for a grower to waste energy, but they also loose out on some buds. Many indoor growers like to judge levels of efficiency against a 'grams per watt' figure that discounts all the other electrical inputs that make a crop possible (we'll come onto this in a minute). A 'grams per watt per month' figure actually offers a far more realistic overview of the efficiency displayed by both light-source and grower. That is, how many weeks does it take to yield 1.2g per watt? We'd imagine that the differential between an 8week indica and a 15week sativa are immense when it comes to calculations like this. Perhaps we'll leave the number counting to the accountants once again...

As amateur electricians, indoor growers must learn to harness every last drop of energy that is made available. And then distribute it into the places/spaces that need it most. Electricity has a fixed price per 'kilowatt-hour' in the UK between 8 - 14p (we keep hearing different figures different places). This cost may vary depending upon many things including; the time of day (economy 7) and the type of voltage an appliance supplies (220 - 250volts). This is where the 'Sparkies' get off on all that technical stuff (volts, watts, amps, hertz, and so on). Understanding the running wattage of a ballast-unit compared with the fire-up wattage is complicated stuff! But the principles are easy enough to grasp. An electrical heater may use more energy than a light-source itself (at which point it's wise to unplug the heater and add another lamp). On the flip side, an industrial-grade air-conditioning unit (the sort that are impossible to hire in July) often draws more energy cooling a room than the lights heating it! At this point it's a case of shutting down at least 50% consumption (or production, depending upon which way you want to look at it). Either way, once consumption outweighs production, any ethos regarding ecology and/or self-sufficiency is lost.

Now we can get onto all that other electrical stuff that helps an indoor room tick over. Starting at the wall, a timer uses about 5-10watts of electricity, an oscillating fan 100watts, a 125mm-extractor fan might use between 60-160watts (depending on setting). That's 190 watts (on a cool day) before plugging in any lamps! Hydroponic growers may use extra electricity on top of this. Let's say 20watts per water-pump, 100-300watts per tank heater and/or 100-150watts for each compressor unit if running aeroponics. That's 500watts plus (on a warm day) for a single set-up. Lights range anywhere from between 125-1000watts per unit. At this point we shall take pause for thought. Ask yourself "Just exactly how many candle-watts of electricity is my grow-room using?"

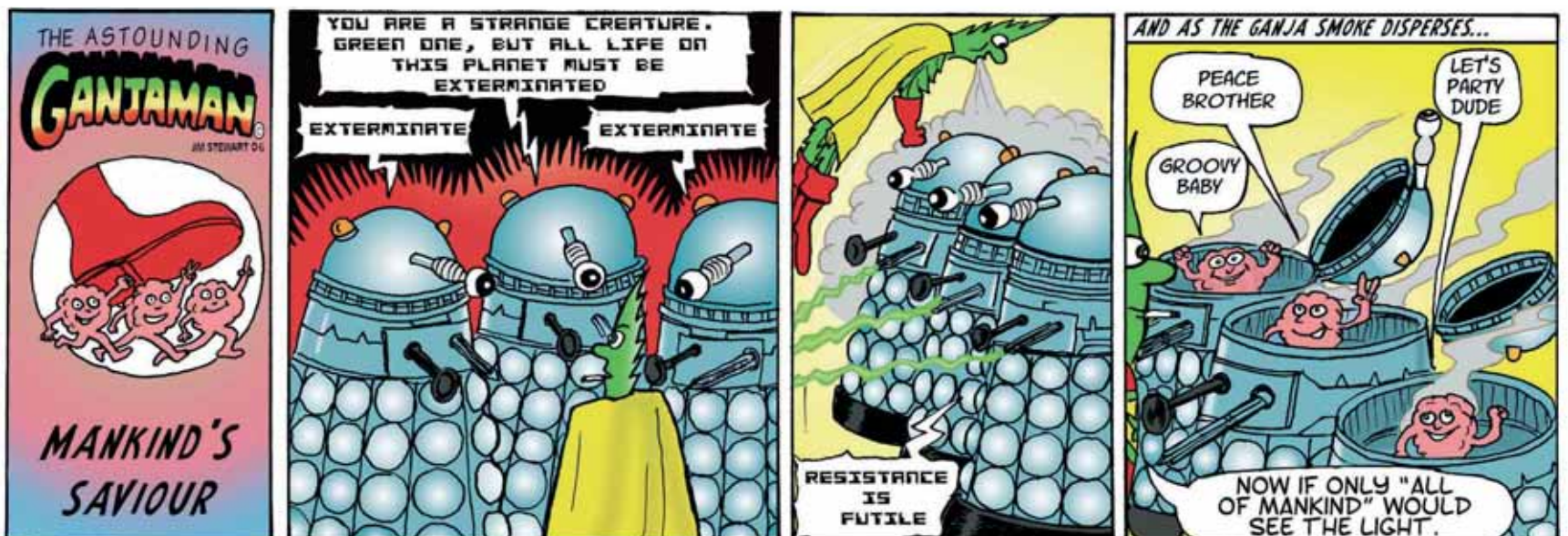
While there are some really obvious ways of saving wattage (like replacing old bulbs that give out less lumens at the same cost as new ones), managing the resources available is far more ergonomic. For example, 2 x 600watt lamps use less electricity in relation to lumens than say 3 x 400watt lamps. Then again, although both set-ups use the same 1200watts of candlepower, the 400watt units may run at a lower temperature, and cover more surface area (depending upon the shades) than the 600's. Ultimately reducing the overall temperature in a room saves additional output-wattage on climate control. This is why it is always important to allocate the right resources into the right area. A computer fan will not compete with a 600watt bulb, just as a 250mm-extractor unit would be over kill when using fluorescent tubes.

Re-circulating 'old air' is also a waste of energy (and bad horticultural practise). Plants don't want to be breathing the air they've already used. The cost involved in reconditioning spent air is also very expensive. A carefully managed passive intake system, requiring little electrical input, and a good electrical output, is often all that is required to keep air flowing. Remember, outdoor temps are invariably always cooler than indoor

temps in the UK so creating fresh airflow can be as simple as opening a window. Making even the most minor of alterations and changes to a garden will often have a major effect (be it positive or negative) on growth, this is after-all one of the principle rules of phenotypic variation in plants.

The future is bright, not orange (change those old bulbs!). Eco-bulbs, digital ballasts, solar panels, hydrostatic fuel blocks, (and even perhaps domestic nuclear fuel cells one-day), shall revolutionise the way that we think about energy consumption while growing crops indoors at home. It has already been proven that where/when people produce their own electricity, they consume less. The onus is on the individual to conserve energy, so that his/her levels of consumption supply their own production, with always a little extra to spare. It's not always possible to place a wind-turbine on top of a grow-room, and we all know that double-glazing costs more than it saves, but this doesn't mean that people can't start making some little changes here and there when they grow. It's logical, ecological and most importantly beneficial for gardeners to think about the energy that goes into growing their plants.

It's always the case that the people making small changes today make big differences tomorrow. For this reason we'd like to retract the idea that urban cannabis growers don't practise ecological methods of cultivation; it's just that the parameters of "ecology" sometimes get overlooked when push-comes-to-shove. The cannabis community actually stands at the forefront of innovation when it comes to intensive methods of cultivation. One of the reasons for this is that ANYONE that grows intensively is possible of prompting change, by testing out new ideas, products, and innovations. In this way the future parameters of gardening are constantly being revolutionised by cannabis-growers themselves; as they strive to reduce in-put and maximise out-put, making harvest-time a gardening success.



Pressing Hashish

Fortunate smokers will remember the time, before the influx of low-grade adulterated hash, when it was fairly common to smoke fine hashish from all around the world. Some of these became legendary and can still be found today.

Names like Red Leb, Gold Seal, Nepalese Temple Ball, Afghani Black and Moroccan Double Zero all conjure up memories of rich and exotic flavours and transcendental highs that were unique to each distinct and diverse piece. So what is it that makes a *Temple Ball* black and soft but Double Zero paler and sandy? Naturally the plants themselves and the conditions of the region play a part, but it is actually in the preparation of the THC glands for smoking where the magic takes place. With a few simple methods learnt and adapted from hash producing regions around the world it is possible to recreate the great hashes of the world in your own home and create a myriad of different high quality hashes that any head would be proud of.

Why Press?

Extracted resin glands are not Hashish. Only once the gland has been processed and prepared in some way does it become a piece of hashish. Molecular changes occur when pressure, heat and oxygen are applied to THC. We refer to this transformation as *Bonding*, although it is tempting to call it *Alchemy*. Pressing with heat and pressure bursts resin glands, which oxidise in the air and bond together. This process can increase the potency of the hash by activating psychoactive compounds and dissipating

Extracted resin glands are not Hashish. Only once the gland has been processed and prepared in some way does it become a piece of hashish.

volatile terpenoids. Different hashes require different methods of pressing to realise their full potential. Whereas the finest grades will adequately bond with the heat of the body and the relatively light pressure of the thumbs and palms, lower grades that contain more plant debris require much greater heat and pressure to activate the resin and bond the hash.

Bonding

Perfectly bonding a piece of hash requires just the right amount of heat and a lot of pressure. If not enough heat is applied the outside of the piece may look black and bonded but the inside will be pale and un-bonded (hash smokers will be familiar with pieces of this type as the majority of low-grade Moroccan hash is pressed this way), however, apply too much heat and much of the flavour and some of the potency will be lost. A piece is perfect when it is homogenised, that is when it is equally bonded throughout. A good quality piece of hash becomes darker as it is prepared not due to heat but rather to the oxidation of the THC as it bursts out of the glands. As the THC comes into contact with the air it turns black. A piece of hash that has been worked in the hand will be black all over because all of it has come in contact

with the air whereas a piece pressed as a slab or brick will have only exposed the outer layer of THC to the oxidation effect.

Pressing by Hand

Hand pressing can be done with dry resin glands extracted from a Bubblesac or Hand Screen but to be done successfully should be reserved for the highest grades and done in small amounts at a time, in the tradition of the *Temple Ball*. This method requires patience and involves a technique that can only be learnt with practice and will involve trial and error. However, hand-pressing high-grade is something any enthusiast will appreciate as it puts the maker into direct tactile contact with the hash. As *Hashish* author Robert Connell Clarke says: "Hand pressing fresh resin and experiencing its transformation from a pile of golden dust into a fragrant, dense, earthy mass, produces great satisfaction." Smoking it produces even greater satisfaction.

Applying Pressure...

In Afghanistan and Morocco, where the majority of imported hash in England originates from, the demand for large quantities for export resulted in various solutions. Often slabs of resin known as, amongst other things, *pollen* would

find their way to England that had been mechanically pressed into a bar shape cold. This meant that less of the resin is bonded leaving the hash dry and sand-like rather than black and sticky. Local producers would sell un-bonded resin at a lower price due to the relative ease of cold pressing compared with real bonding. When the process is done cold or with minimal heat the resin glands are simply very tightly compacted together rather than bonding properly. This is why hash of this sort looks sandy and

grainy rather than black and sticky. As we have said, bonding requires pressure and heat.

...and Heat

One bonding method that was commonly used in Afghanistan was to fill a cellophane bag with powder, wrap it in a cloth or similar and then beat it with a bat. The repeated blows agitate the resin glands, heating them with friction and a well-bonded smooth black patty is formed. Alternatively, gently warming the resin before pressing makes it possible to get a nice even bonding

One bonding method that was commonly used in Afghanistan was to fill a cellophane bag with powder, wrap it in a cloth or similar and then beat it with a bat

throughout the piece. This process is not very precise as each piece of hash is slightly different and the amount of heat required varies. In some cases the vice is heated prior to pressing but usually, and more successfully, the resin itself is warmed either with steam or on hot rocks from the fire.

Pressing Hash at Home

Here are a few simple and effective bonding methods that you can do in the comfort of your own home:

Note: *Most of these processes require Natural Cellophane to work properly. Unlike normal cling-film, Natural Cellophane allows moisture to pass through it, which makes it ideal for bonding with steam heat. Another advantage is that even the stickiest high-grade hash and oil will not get stuck to it, making it about the only way to store your pieces; Essential stuff for any hash maker.*

Here are two processes that originate in Turkey and are simple and highly effective at bonding Bubblehash at home:

Shoe Bonding

For the higher grades make a parcel from the Natural Cellophane and fill with dry resin gland. If the gland has been extracted using ice and water, make sure it is properly dry (NB proper drying should take 5 to 10 days in a warm dark place). Simply place the parcel in your shoe and walk on it for a good few hours

(you may want to put the parcel inside a baggy to stop unpleasant foot odours). Keep checking the hash. The warmth from the foot coupled with the pressure gently squashes the resin glands and bonding takes place.

Steam Bonding

For lower grades again make a parcel and fill with resin. Wrap this parcel in newspaper a few times and quickly dip into boiling water. Next wrap the wet parcel in tin foil and heat over a flame or on a hot surface being careful to regularly turn the package so that the

heat is evenly spread. After a short while the parcel will expand due to the water soaked in the newspaper boiling and releasing steam. At the moment when the package begins to deflate place it on a hard surface and press either with your foot or a heavy object. The amount of force depends on the size of the parcel and quality of the hash. Allow to cool, and smoke.

Boil in the Bag

This time the cellophane parcel is placed inside a zip-lock plastic bag and placed in a pan of very hot / boiling water for a couple of minutes. The exact amount of time will depend on the hash and the plastic bag etc and should be watched carefully to make sure it is not over-done. A small amount of pressure can be applied once it is taken out. You can tell the piece is perfectly bonded when both surfaces are glassy and reflective.

Vice Pressing

As we mentioned earlier, hydraulic jacks can be used to apply lots of pressure to the hash. All sorts of vices can be used from hydraulic car jacks to G-clamps or screw clamps.

*** This article has been brought to you by www.Bubblesac.co.uk Hit the site for all your hash making needs. We hope you enjoy the article as much as you will enjoy making the purest hash known to man!**



Boiled pressing



Dry water hash



Hash bag boiled for 2-3 minutes, until soft



Hand made hash from India



Hash wrapped in natural cellophane



Low heat pressed



Low heat



More pressed water hash



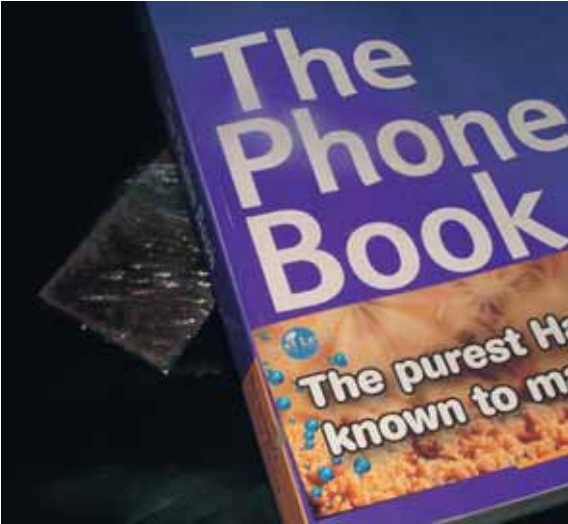
Part bonded by hand



Pressed water hash



Same hash pressed in different ways



A standing press



Unbonded



Unpressed dry water hash

The Cat that got the Cream *Part 18*



Harry (*not his real name) is an Englishman in his mid-thirties who has spent the better part of the last decade living in a remote hashish-producing village in India. Having settled in India Harry started to bring back a small amount of some of the finest *Himalayan Cream* on his regular trips back to the UK. Here he talks about his exceptional hash and the trials of smuggling with Soft Secrets UK.

By Chris Marchand

SSUK: So, Harry how did you get involved with bringing hash to the UK from India?

I've always been into smoking hash and to me; there is no better hash than the top grades produced at high altitude in Northern India. I got to know some farmers in the region and settled in a village renting a house from a farmer. Smoking a chillum together is one of the great pleasures of living in India. It is a very sociable and ritualised affair. I began bringing very small bits back to smoke while I visit England because I knew I wouldn't find anything as nice here (no offence). My friends who were really into their hash were blown away by it. After a little while it made sense financially to bring some of this stuff back to people I knew back in England who would appreciate it and to help support my life there.

Where about in India does the hash come from?

It comes from the north, above Delhi in the valleys leading up to the Himalayas. That area has always been well known for the quality of its hash and as a result it is often seen as a centre of smuggling just the same as Morocco or Afghanistan. Coffee Shops in Amsterdam and things like the Cannabis Cup have made names like *Manali* synonymous with high-grade. Also, the constant influx of tourists, in particular young Israeli travellers, coming to the region to score large amounts of

hash has brought attention on the region as a major hash exporter. I heard recently that the authorities had recently started checking national Indian mail as well as courier parcels for hash being sent and in the first week they found nearly 50kgs in separate parcels.

This is why I only bring small amounts back. For me up to a kilo is sufficient and I only bring the highest grades back so I can charge a reasonable price for it and will never have trouble shifting it. If you are only going to bring a small amount back you want to make sure it's as good as you can get.

Tell us about the hash – or *Cream* as it's known locally.

This hash is proper *Indian Cream*, the highest-grade charas. I usually bring back two grades so that I can offer one at a slightly cheaper price but both are exceptional (after a couple of chillums SSUK can agree – ed.). It's all hand rubbed by the farmer's family and worker villagers who have been doing this all their lives. They know how to properly rub the buds to get the best hash. There's a real technique to it that takes a while to perfect, otherwise the hash becomes tainted or else the process takes forever. This way the cream is jet black and really soft and pliable. The stuff I bring back is rarely ever exported and usually reserved only for the farmer and close friends. I'm lucky to be close enough to get some to bring back, especially as a westerner. People here (in the UK) are always pleased to see

me because they know I've got some rare hash that you just don't find these days. Even in the days when lots of charas was exported it was almost always the lower grade stuff. That stuff is still unadulterated hashish but like all things when it goes commercial quality is lost and after the first rub or two the hash becomes full of fibre and green matter. At least it's still part of the plant but it takes away from the enjoyment of smoking it.

And what about the plants it's made from?

The plants grow all the way up the south facing side of the valley. In the area cannabis plants can be seen growing wild all over the place. The plants used in the hash are cultivated in fields and tended to by the local villagers. Generally the stuff grown at higher altitudes, say 9000ft plus is the best. That stuff is harvested in winter while the plants from the lower valleys are harvested in summer so the time of year can affect the hashish.

What is the deal with farming cannabis on a big scale? Do the authorities try and stop it?

It's a complicated issue and depends on the region you are in. Like I said, we are way off the beaten track and we don't get the tourists so we get less unwanted attention. There are allegations that some villagers are encouraged to grow cannabis by the exporters and that the same exporters are major fundraisers for the politicians representing the region. I think it's all really pressure from outside of India.

A couple of years ago the government did send the army up to our village. I was sat at home when one of the villagers came and told me the army were on their way. You might think panic would break out but being in the valley means that you can see the one road from miles and miles away so we all casually watched them making their way up into the valley. As a Westerner I would have been conspicuous and I didn't want to be around when they arrived, as my presence would draw particular attention to the village, so I took some things and trekked a little further up the valley.

I got a bit further up and came across a clearing where there was a family having a picnic which they invited me to join. So I sat there eating beautiful food, smoking my chillum and watching the army going about its business for a few hours until I saw the little train of ants march back off down the valley. When I came back it turned out that the army had intended to destroy all the fields and fields of cannabis plants and to do this they had brought with them: one saw! At this point the plants were huge, each about eight or nine feet tall with stems about six inches in diameter. I think they managed to chop

down three plants before giving up. That was the last time they bothered coming up there.

At this point Harry begins to load his chillum again and tells me this is how they smoke in India and so it's how it should be done. SSUK won't complain. The clay pipe is filled half with little sausages of Cream and half tobacco from an Indian Gold Flake cigarette that has been gently roasted over a flame. A small piece of cloth (Saffy) is put over the end and the chillum is lit and passed around until everyone has had a good hit.

As a hash connoisseur what do you think of modern hash making, such as ice extraction?

I first smoked bubblehash here in England a few years ago and was very impressed at the strength and purity of it. It's true that there is a flavour and spiciness that comes out in Indian hash that is missed in hash made from homegrown plants. Also the varieties grown here indoors are such a mixture of genetics that the flavours become more complex and overlapping. With our charas the plants have been grown in the ground in full Indian sunshine and at high altitudes. That's always going to be hard to beat.

Having said that I did take a set of Bubblesacs out with me to India to give them a go. They asked me what they were at customs so I told them they were a cheap method of washing your clothes in the river and they bought it.

How did the hash come out?

Pretty well. The bags worked great. The only problem was that the guy making the stuff firstly blended all the grades from the sacs into one kind of hash and secondly he pressed it with a little moisture still in it, which tainted the flavour slightly. Using water to extract is a good method, you just need to make sure there's no water left in it when it is pressed which is completely different from hand-rubbing buds so he can't be blamed for it.

Was the Bubblehash method new to people out there?

To a lot of people yes, but actually water-extraction is not unheard of – especially since the *Ice Cream Man*.

Tell us more...

The Ice Cream Man was a European guy, German I think who devised a method for extracting glands off a fields worth of ganja in one go. Like making bubblehash on a massive scale.

What he had done, basically, was go a long way up the mountain to a totally remote spot where there was a river of



pure melted snow running down from the peaks. At one point the river had created a series of pools one above the other. What the Ice Cream Man did was build a crane overhanging the top pool with a net big enough, like I said, to hold about a fields-worth of plants. Further down in the next pool he could dam the regular flow of the river and divert it through these giant pipes with screens inside for catching the gland. It was a perfect natural ice-water extraction system and for a while he was producing big amounts of unbelievable pure bubbling hash that everybody knew as *Ice Cream*. And on a ridiculously large scale too, considering the quality of the stuff.

So, what happened to the Ice Cream and the Ice Cream Man?

Well, eventually his operation got noticed and he was grassed up to the authorities by some locals. Unless you are very well accepted local people can be a liability as there are plenty who are happy to sell out a westerner for some personal gain or to get themselves out of trouble with the authorities.

Did he get caught?

No, he was saved by the fact that his operation was so remote. Same as I mentioned earlier, he saw them coming and had plenty of time to get away but they did clear out his house and seized all his stuff. And they destroyed the Ice Cream set up, which was a real shame.

Have you ever been caught bringing hash back?

Touch wood – No. With smaller amounts carried on your person the risk is not so high. It’s all about confidence. I seem to be one of those people who can drift by virtually unnoticed. It does take its toll sometimes, though.

How exactly to you get it all through customs?

Sometimes on my person, perhaps in the soles of my shoes but most of the time the hash is divided into small pieces and I swallow them down and carry them back in my system. It may not be the easiest way to carry hash but it is certainly the safest and probably the reason I have been doing this for so long with out any trouble.



Can’t that be dangerous?

Not if you know what you are doing and take the right amount in the right size. It can be a pretty arduous task swallowing down that many large pills of solid hash. It sits pretty heavy inside of you. You know you’re going to have to crap them out at the other end so you have to bare that in mind. High-grade charas is soft and easy to mould so you can put them into appropriate smooth shapes. Put it this way, there’s no way

I’d bring back any other type of hash this way. And as you know, hash is completely non-toxic and so there’s no real serious danger as there is when people smuggle cocaine or heroin that way. Having said that you want to be as certain as possible that all bits are wrapped and sealed completely. If you started to digest the hash it would make things a lot harder. All my pieces are hermetically sealed - don’t worry about that. The hash does not come into contact with anything but the wrapper it’s in.

Have you ever had any bad experiences with this method?

There was one time when I had swallowed a fair amount of hash to bring back. I don’t know if you’ve ever tried it but swallowing down lumps of hash isn’t easy and carrying that much around inside you can be pretty tough.

“The first time I smoked Indian Cream also coincided with growing my first cannabis plant. It was a classic cupboard set up in a student bedroom: 400w HID over 1m_ with a single Afghani/Thai plant in a hydro bucket set up. She had been growing for a few weeks when I scored a small piece of this highest-grade Indian hand-rubbed charas, sold as Royal Cream.

I had just changed the nutrient in the bucket and had sat down to eagerly tuck into a few bongos of this soft black blu-tac. What followed

was one of those true memorable hash-smoking experiences where, despite having smoked ganja everyday for the past year, it feels like you are getting high again for the first time.

The high was overpowering, soaring, relaxing, meditative and thoughtful. All the while I was looking at my vigorous little plant with the pride of a new parent. As I watched, the reflective sheeting covering the walls of the cupboard gave the illusion of an endless white void and there at the edge of the void was my little

So, anyway, I had swallowed all my parcels and took my connecting flight to Delhi but there was a problem with the rickety little plane we were in and we got delayed getting to Delhi. As a result I missed my flight to the UK and had to wait twenty-four hours before the next one. This obviously posed a problem for me, as it fucked up the timescale and I couldn’t risk it passing through me on the plane or in the airport. You have to get your timing right and the delay screwed things up for me.

So, I’m holed up in this hotel room in Delhi and, to cut a long story short, I had to throw up all the hash in my stomach, wash it off and re-swallow it the next morning. Thing was, I couldn’t face going through it all again and so I ended up leaving a fair amount behind, which cost me. But then, that’s how it goes.

To be honest, some people might not like the idea of the hash going through somebody’s system but when it’s all done properly and sealed there’s really no better way.

I have brought bits back in my shoes etc but these days, since 911 and all that, that has become less of appealing option. Best take it through internally.

I had a friend in Morocco many years ago who was sending back fair amounts of this really nice hash, proper bubbling *Sputnik*. They always used to arrive in single lumps of around 700 or 800g that resembled giant ostrich eggs or something. Turns out that he was employing some local women who were...how shall I put it?...on the very large side and they were bringing them back as only a woman could...if you catch my drift. The largest one was just shy of 1kg, that’s almost a bag of sugar. I don’t know how they could walk but it’s pretty impressive, all the same.

plant. As I watched her soft green stems and lush bright leaves they seemed to be basking in the light when all of a sudden I could have sworn that she gave an audible little stretch and grew an extra inch all over! Now I know this is an illusion (either that or I had sat for so long and my perception of time was so impaired it had, in fact, grown) but it gave me immense satisfaction and I knew then that this plant was special because she was to be the first of many and the beginning of a life-long obsession.”

Leon, UK Grower



BioBizz : Organic is simply better

For almost 15 years, BioBizz has been a name everyone in the growers' world is familiar with. From the very earliest days of home growing in the Netherlands, the products of this company in Groningen have been the standard by which the competition is measured. Which grower is not familiar with the durable reputation of *All Mix* or the penetrating odour of the *Fish-Mix*? In a line of business where hype comes and goes, BioBizz has over the years remained faithful to its principle: producing an organic quality of great purity. You can call it idealism, if you like. But the kind of idealism mixed with a good deal of Groningen common sense and a healthy dose of international ambition. Power through simplicity: an impression of a strong brand that sets great store by service and proven quality.



This bottle of Bio-Grow is ready for its journey across the world.

When in 1992, BioBizz founder Jetze started his company on a farm in Garmerswolde, growing cannabis had mainly been associated with the

mid-nineties, the number of nutrients for the cultivation of cannabis grew explosively, and it seemed as if only few people cared about what really

**Connoisseurs have known it for years:
superior quality marihuana can only be grown
organically.**

prevalent counter-culture. 'Organic' was a familiar concept in those days. But as the cannabis culture became increasingly professional, these idealistic ideas faded more and more into the background. In the

went in the plant food. The only thing that counted was how to make the highest profit with as little investment as possible. The tasteless Dutch 'water tomato' had found its match in the Dutch-grown cannabis (Nederwiet).

Still, real lovers and connoisseurs of top-class cannabis products know that superior quality marihuana can only be grown organically. You tell immediately by its taste and the effect, but also in the well-being of the plants: they just thrive best on purely natural materials. Indeed, 'it's quality that matters, not quantity', is what they say at BioBizz.

Ultramodern

Although the farm was replaced two years ago by a streamlined professional operation on an industrial estate in town, BioBizz has lost none of its quality. On the contrary: the high-tech production line guarantees an even better quality inspection than ever before. And of course, the prestigious marks of quality the company has been awarded underline that BioBizz



The roots:
the former BioBizz farm Garmerswolde.



Technical director Jetze in the
BioBizz lab.



Organic and dynamic:
commercial director Luis.

also practises what it preaches: the recognition by OMRI and SKAL leave little room for doubt. What BioBizz claims is thus confirmed by the strictest international inspection bodies, and that is more than any other manufacturer can say. From the smallest ingredient to the hygienically packed end product, the quality of the BioBizz line reveals its organic origin. A comforting thought. And it is the home grower who will benefit, who will be able to enjoy an honest natural product without having to worry about chemical 'time-bombs'. And he is of course rewarded with a vigorously growing and thriving plant.

Fresh

Despite BioBizz' leap forward into modern times, the family feeling of the traditional farm in Garmerswolde has remained. All employees, for example, regularly do their bit in the production process to make sure they do not lose touch with their roots. This also applies to technical manager Jetze, who can usually be found behind the scenes in the company lab. Commercial director Luis is originally from Portugal but he speaks better Dutch than many a local. Thanks to this dynamic, internationally trained professional, marketing has become a serious business and the name BioBizz has become even better known.

All BioBizz food products are made in house, which is not as obvious in this line of business as you might think. Since the measuring and mixing of the raw materials takes place just a couple of yards from the office, it is possible for production and logistics to be geared to demand. As a user, you are assured that BioBizz products are always 'fresh' from the shelves.

Through the years, the product range has remained basic, without all kinds of superfluous frills being added, which only serves to benefit the end user – simplicity is after all the hallmark of truth. Intensive personal contacts with buyers, detailed info sheets and an attractive website provide the essential support and service.

Although food is currently BioBizz's core business, the earth line is still going strong. Elsewhere in the region, the ingredients for the *All Mix* and *Light Mix* are fermented and mixed under strict supervision. A recent newcomer in the assortment is the 20-litres baby-packing *All Mix*, already a big success in many countries. For the future, BioBizz still has several sensational surprises up its sleeve. More about that in a future issue of Soft Secrets.

Meanwhile, in an increasing number of countries, BioBizz has gained a reputation of reliability, sustainability, and respect for nature. Because, let there be no mistake about it: BioBizz is a world brand; the company is represented in no less than 41 countries on 5 continents. And from Australia to South Africa, the most demanding growers know that the secret of real organic quality hails from Groningen. Because whatever way you look at it: organic is simply better!

BioBizz
P.O. Box 9569
9703 LN Groningen
Netherlands

(i) <http://www.biobizz.nl/>
(e) info@biobizz.com
(t) +31 (0)50 541 46 50
(f) +31 (0)50 542 52 23

Science, or the lap of the gods?

By UK Grower

When Dan Brown first came up with the concept for his record-breaking novel *The Da Vinci code*, (and even though already established as a successful best selling author) he could never have wished for even a fraction of the success the book has basked in since its initial publication in 2003.

Widely renowned for its clever, intricate explanation into the theories behind the enigmatic smile portrayed by the Mona Lisa, Brown's sixth and by far most successful book is said to have sold some 45 million copies worldwide, helped no doubt by the widely documented (and in part at least, successful) lawsuit instigated by two aspiring authors, who claim Brown plagiarised their work in the creation of his best seller. The worldwide publicity guaranteed the success of the book, and history was written (and re-written).

But things haven't always been so rosy in the garden. An earlier book written by Dan Brown sold only a fraction of the sales recorded by *The Da Vinci Code*. *Angels & Demons* (2000) is a futuristic look into the roles science plays in everyday life.

Based around 20-30 years in the future, it tells of the struggle up and coming scientists had in the 14th, 15th & 16th centuries, with the Catholic Church, which was dead set on anything which flew in the face of religion. To the extent that a string of Popes had ordered the capture and execution of the men accused of (amongst other things) witchcraft.

In fear of their lives, pre-eminent scientists such as Galileo and Leonardo Da Vinci went underground to continue their research and experiments.

The church would not allow Da Vinci to experiment on dead bodies so he used animal organs from a butcher's shop to create graphically accurate representations of human organs.

So clear were his sketch's and illustrations, that 500 years later they are said to be accurate enough to use as blue prints for machinery designs, albeit rudimentary by today's standards.

In the meantime the research carried on, the results of which were often credited to a mythical and legendary secret society called *The Illuminati*.

When a world renowned scientist is found murdered on the grounds of a medical research institution in Switzerland, with his body branded with the mark of the by now long forgotten *Illuminati*,well lets just say the shit hits the fan.

After reading the book it got me to thinking just how much science plays a part in all our lives. Especially so, as home growers!

It also made me realise how much a part religion plays in my own day to day growing.

I remember sitting on the motorway on many occasion's, traffic queued up for

miles in every direction, looking through a rain-streaked windscreen at the brake lights of the car in front whilst whispering to myself, "Please God". "Just let them still be standing by the time I get there, and I promise I will water them more often". If you're smiling, then you'll know what I mean.

Unlike the 17th century Catholic Church, I've managed to find space for religion as well as a goodly dose of science in my own grow room.

By abiding by a few, simple scientific rules it's possible to make the growers life so much easier. Let's have a look at some of them, as well as how they apply in and around the grow room.

Osmosis

Osmotic pressure, the pressure that develops in a solution separated from a solvent by a membrane permeable only to solvent, was first described by Abbé J.A. Nollet.

Osmosis was discovered by Nollet in 1748 with a container, filled to the brim with alcohol and closed shut by a pig's bladder. Prior to the experiment starting the pig's bladder had been soaked in water, to protect the alcohol against the entry of air.

The bladder had admitted the water into the container, but only very little alcohol had passed the other way. So water and alcohol were being exchanged, that is, the container closed shut with the pig's bladder contained water that was below the alcohol.

Also the pig's bladder extended concavely into the alcohol container, attracted by the osmotic pressure of the alcohol as it attempted to draw itself into the pigs bladder.

It had let water escape into the alcohol and yet had allowed only a little of the liquor to enter the bladder, (so only a semi, semi permeable membrane, as it were =).

His discovery of the osmosis of water through a bladder into alcohol was the starting-point of that branch of physics. Since then a lot has been learnt about how osmosis works for us when we grow our plants. It is (after all) how roots do their stuff and also how the internal transport

and distribution system works. But how can the information above help us to improve our growing?

If you're having problems with your EC rising at run off, this is a good theory to read up on.

In laymans terms, "*The passage of "nutrients", through the semi-permeable membrane (the root outer), is controlled by the relative concentrations of individual nutrient elements on either side of the membrane*".

So what I'm reading is this. If I feed my plants with an EC of 0.4 in coco, that sets the bar. The inert medium acquires the Ph and EC values relative to the nutrient mix. That's why we pre-soak (pre-treat) our cubes/slabs right?

If I then increase my feed strength to 0.6, the medium changes its Ph/EC values to match the new solution, yet the EC within the roots is still at the previous (lower) value.

As the roots grow and move through the medium or solution, osmosis kicks in and in a bid to equalise the concentrations of the nutrients both in the nutrient solution and within the roots, osmotic energy transports the nutrients whichever way is necessary to equalise the concentrations. Science rocks, doesn't it?

If you did your sums right, you get it flowing the right way. If you got it wrong and nutrient is flowing the other way, your plant will die quickly, unless action is taken.

So if your EC is RISING at run-off, chances are there are some issues which need your urgent attention.

The NFT (nutrient film technique) method is renowned for spectacularly fast growth. I've personally watched a plant grow 4 inch's in a day, and another grower I know said he witnessed 7 inch's on one particularly gnarly tropical sativa. 7 inch's?

How rad is that?

Given unlimited amounts of everything, (CO₂, food, water etc) and with no root restraint and it becomes easy to see how just 1 weeks NFT growth can match 4 weeks in compost.

But as if equalised by osmosis itself, the high good value is reflected with a high

bad value, and this is what stops people getting into NFT.

When using the NFT method, and as a result of the fast growth, problems manifest fast too. It seems like everything is running at fast-forward speed. So by the time the problem has manifested itself on the leaves, it's often too late to react as the condition has become terminal at the roots

There's nothing more frustrating for a grower, than knowing you have provided everything the plant needs, but it still won't feed.

Unfortunately the knee jerk reaction tends to be to throw more lotions and potions at the plant in a bid to cure the unknown ailment, which for the most part merely serves to make things worse until the original symptoms become masked, as the plant tries to deal with all this new "stuff".

But an even easier way to deal with this condition is not to let it happen in the first place.

By adding another ten minutes to your daily routine in the grow room, its possible to head off all of these issues in one fell swoop.

By taking daily Ph and EC measures it's possible to find out what's happening within the plant, before the problem has a chance to manifest itself on the leaves. And by adding the measurement of your EC/Ph at run off to your daily chores, you can see exactly what the plant thinks of its diet and act quickly once the results are in.

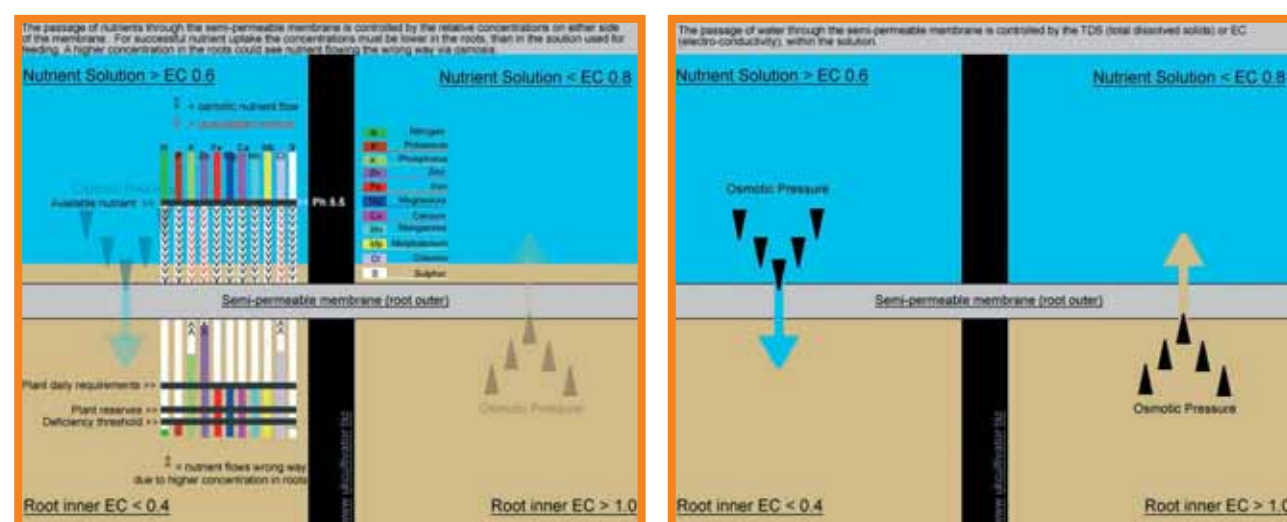
Then you can sit back and listen, as the plants (almost) audibly rustle, as they grow and grow and grow.

In closing, one of the most regularly asked questions heard online is "can I grow my plants without an EC measuring device"?

The answer is yes. Of course you can. But if/when problems arise its very hard to correctly diagnose the issue if you are unable to take readings. It's like missing one of your "senses".

If you ask online, the answer will be the same. "We can't advise without knowing what your EC/Ph readings are so put a truncheon on your Christmas list, and listen to the plants grow.

More "Science in the grow room" next time.



Into the Heart of Darkness Cambodia

"There are practically no laws left in Cambodia" - United States Drug Enforcement Agency Officer.

Cambodia has suffered from a terrible political history over the last century. From its involvement in the Viet Nam War with America in the 1960's to genocide carried out by President Pol Pot's regime and civil war with the Khymer Rouge the Cambodian people have suffered great adversity and still come out as one of the friendliest, most welcoming society a traveller could be lucky enough to encounter.

By Chris Marchand

Today Cambodia has opened its doors to the world and is being discovered by a new generation of travellers. It is only in the last twenty or so years that the country has become a safe destination for travellers and it still retains some of that edgy, off-the-beaten-track appeal. For years neighbouring Thailand has been the top destination for backpackers looking for white sand beaches, parties and jungle but word is rapidly spreading about all that Cambodia has to offer, and with only a fraction of the tourist who have flooded other parts of South East Asia. One particular draw is Cambodia's massively relaxed attitude to cannabis. Buds are placed on the tables in bars and restaurants and 100-gram bags of low-grade can be bought off a market stall for as little as \$5. Smoking in public accepted as nothing out of the ordinary. Indeed cannabis in Cambodia was only criminalized at the end of 1996 after heavy pressure from the US. Cambodia had no choice but to bow to the pressure since the US supplies aid to the tune of roughly 40% of the countries budget and could cause chaos with a sudden aid cut off.

Corruption in Cambodia is said to run deep and drug trafficking is where it is most rife. At the end of the last century the UN estimated the Cambodian cannabis trade to be worth \$1 Billion

and Cambodia to be the worlds second largest exporter of cannabis after Colombia.

Many of the countries most prolific traffickers enjoy diplomatic immunity or protection, which has led to some truly bizarre cases. A few years ago the French Press Agency reported a story with the Headline: "Naval Police Arrest Six Drug Squad Officials by Mistake". What had happened was a sting operation headed by an American DEA official stationed in Bangkok who led an undercover operation to arrest some Cambodian drug traffickers. The parties had arranged to meet on boats off the harbour at Koh Kong, known as Cambodia's main cannabis producing region, to exchange a large quantity of cannabis for export to the US via Thailand. After a two-hour wait two boats came out to meet the undercover officers and make the deal. To their surprise when the boats arrived the delivery men were Cambodian Naval Officers who inspected the boat before taking it and the officers to a deserted island where the DEA officers was ordered to phone his "bosses" and pay \$40,000 owed for a previous shipment and to secure the release of the men on board. The DEA officer called the Intelligence Agency in Bangkok who had no trouble pinpointing the boat with satellites. Frantic three-way negotiations

began between Thailand, Cambodia and the US with the six Thai prisoners/drug squad officers being extradited to Bangkok four days later. No arrests were made and the matter ended with a "memorandum of understanding" which stated that no party had broken the law and so the matter was closed.

In the case of cannabis it is hardly surprising that the peoples attitude is relaxed. Cannabis grows wild all over the place, at the side of the road, outside police stations and in the ancient ruins. Farmers need only scatter the seeds and reap the harvest with very little hard work. Ganja plants can even be seen growing amongst the trees of the Ankor Wat temples, remains of a lost society to rival the Pyramids in Egypt as well as Machu Picchu in Peru. As with much of Asia, in Cambodian society smoking cannabis is seen as an old man's pastime and far less popular with the young generation. Young Cambodians looking for a high are more likely to drink alcohol or take imported amphetamine than smoke buds.

Along with its stunning wildlife, jungle and beaches it is undeniable that it is Cambodia's seemingly "lawless" society that attracts many foreign visitors. Cambodia has always had a reputation for being the "Heart of Darkness". Anyone who has watched Apocalypse Now will testify to the image of Cambodia accepted by the West at the time of the Viet Nam war. Depending on the view you take Cambodia is now being both enjoyed and exploited by visitors to the "lawless" society. At best, these visitors simply want to enjoy the natural country whilst freely smoking cannabis in a tolerant atmosphere. At worst the countries lack of law enforcement attracts sex offenders who can readily exploit children and adults in the sex trade. (Ex-Pop Star turned Paedophile Gary Glitter was extradited out of Cambodia rather

than prosecuted and it was only when he turned up in Viet Nam that he was imprisoned for child sex offences). In a place where anything goes and the law represents only a small threat to ones liberty it becomes the individuals moral responsibility to act appropriately. Needless to say there are plenty who don't pass the test.

If you so choose you can pay a small sum and be taken to some remote part of the jungle to let off rounds of a whole arsenal of weaponry from small hand held to shoulder mounted rocket launchers and assault rifles. And yes, you can also purchase a live chicken, cow or goat to use as target practice. This practice may prove more morally divisive; some would find it grossly unacceptable whilst others would no doubt relish the opportunity.

It is hardly surprising that, in an age when travelling all over the globe gets easier and easier and Western society becomes more and more restrictive on the individuals personal freedom, those who feel constrained by the laws of their own country would flock to places where they are allowed to experience those forbidden fruits. Cambodia is one such place. Keen to emulate their neighbouring Thailand's massively lucrative tourist industry Cambodia has opened itself up to the rest of the world to be either enjoyed or exploited. All too often the case is the latter, with natural rainforest being destroyed to make way for the tourist influx, a booming child sex industry, and drug trafficking trade supplying much of the worlds heroin. Sadly, the tolerance and industry surrounding cannabis is also seen as part of the problem and one can't help but wonder how long Cambodia will be allowed to remain a pot paradise. Cannabis has been part of Cambodian society and culture for thousands of years; it has only been a problem since we in the west decided that it was.

Smoking Grass and Making Bubble in Cambodia: Tales from an English Hash Maker



World famous Angkor Wat

"We crossed into Cambodia from Thailand over the border at Koh Kong. It was a classic border with metres and metres of barbed wire fencing, armed guards and a very simple small hut. Once our passports had been checked we crossed out onto the road where several local taxi drivers were hanging about waiting to whisk the new arrivals off to hostels in town. We got chatting to two local guys with a car and scooter

Honda crunchy was a welcome relief from the 35° heat and 90% humidity but it also dawned on me that my stone from the weed we'd smoked on the Thai side of the border was beginning to wear off and I'd need to score some more here in Cambodia.

Thankfully, this turned out to be no problem at all as the guy who checked us into our room also sold us a bag of local

Cannabis grows wild all over the place, at the side of the road, outside police stations and in the ancient ruins.

and agreed to a ride into town to their guesthouse. The car quickly filled with people and baggage leaving just one seat on the back of the scooter, which was cool with me. As we cruised into Koh Kong the breeze on the back of the little

grass. The weed was sticky and pretty twiggy but it had some decent resinous buds in it and did the job, although we were told that there was nicer bud available for a little more money. Despite almost all the plants being pure sativa's



A typical Cambodian self-made bong



It takes some effort....



Bubblin' the night away

the weed had a full-bodied stone that was not what you might expect from a sativa. This could well be down to the way the herb is treated after it is harvested. There is a massive lack of education in Cambodia and this includes techniques we almost take for granted here in Europe. For example very little of the local Cambodian weed has been dried properly let alone cured. Most of it is left in the sun which degrades the THC and possibly converts much more of it into CBN and CBD, which would account for the heavier stone.

That evening at dinner we met a German guy named Otto who owned a restaurant and guesthouse. Otto had lived in Cambodia since the seventies when he had been imprisoned in Sweden for having literally a spliff's worth of Moroccan hash. After that he thought 'fuck Europe' upped sticks, moved to Cambodia, married a local woman and opened a bar. Otto told us he could get some nice herb if we hang about for a while in which time I had begun to tell him about the bubble hash I had brought from England. He seemed interested so I borrowed one of his bikes and headed back to the hotel to get it.

A little while later I had returned with the bubble and found Otto with a Cambodian dealer who had the nicer grass. This guy seemed pretty charged, sat forward with an intense expression, drawing hard on a cigarette and talking quickly. I only point this out because after a couple of pipes he had completely transformed and was sat back with a big grin on his face and

was telling jokes and stories. It turned out his weed was pretty good and the conversation quickly got onto how the Word of Bubble should be spread. It had gone down well.

After a short ferry ride from Koh Kong we arrived in Sianoukville where we had arranged to meet a Canadian guy, Billy, who was a friend of a friend back home and had been living here for a couple of years with his wife. I had packed a 6-bag set of Next Level Bubblesacs and was keen to try them out on some of the local herb, especially as the ball I had brought with me had shrunk considerably. In no time at all I had chatted to some kitchen staff at a restaurant and was now purchasing a kilo of bud for \$50US. I don't know anywhere in the world where a kilo has come to hand quite so easily. This is the beauty of Cambodia for the cannabis enthusiast.

Billy was keen to try out the Bubblesacs so we set about making some high-grade in the kitchen of his apartment. In England when we make bubble, everything we need is at hand or easily purchased. In Cambodia we needed to improvise a little but this gave the process a unique local feel. To begin with we needed lots of ice. Unlike here or even Thailand where ice comes in cubes, Cambodia still uses massive whole slabs of ice. This is apparently left over from French colonial times and you can often see a local woman dragging a huge block of ice down the street with a hook in it. We set about chipping away at our block and made plenty of shards for bubbling.

Next problem was the mixer. As Billy's apartment didn't have electricity even if we had had a mixer we would have to use a bamboo pole.

After picking out the best buds from our kilo we set about putting the rest through the Bubblesacs. I knew that with a bamboo pole for a mixer we weren't likely to get a huge amount but when the kilo only cost around £30 who cares? We'd have a piece of pure local bubble hash to enjoy on the beach and that's what counts. As a hash maker and cannabis lover you want to enjoy the best of the local weed. Making the hash allows you to experience the pure resin from the plant without having to

Happy or Very Happy. I think we went for just plain Happy but when it arrived we could see that it had a good thick layer of ganja covering it. Unperturbed we all tucked in. On top of all the grass we had smoked it wouldn't make much difference now anyhow. And there was still the hash try...

It's hard to say exactly how much bubble we made but there was plenty for us to smoke and share for the rest of our stay and a good-sized ball to leave behind as a gift. Of the three grades (we also used the Catching Sac) of hash we made there was slightly more in Sac 5 than Sac 4, which has the smaller micron screen. Usually on indoor crops

Along with its stunning wildlife, jungle and beaches it is undeniable that it is Cambodia's seemingly "lawless" society that attracts many foreign visitors.

smoke your way through all that green matter. If the bud is dried quickly and outdoors in the sun lots of the plants natural chlorophyll is locked in and THC degrades. Again, reasons why this full sativa will get you real stoned. The hash turned out to have a much more pleasant and full stone. Still strong but not so debilitating.

Because the process would take a while and since we had smoked countless pure spliffs we decided to call out for pizza. Billy suggested we get a Happy Herb Pizza delivered and called one up. He asked us if we wanted Happy, Mildly

and particularly indica-dominant strains you would expect this to be the other way around. Since these were full sativas we were using and they were grown in the sun it is not surprising that the smaller screen collected the highest amount of mature glands. What's more: the Catching Sac (with the smallest sized screen) collected a larger amount of high-grade hash than I've seen when using any other type of weed. The high from the hash was full-bodied and long lasting but not at all sleepy. Perfect for a bit of site seeing on the scooter or just lying on any of the numerous deserted beaches. Paradise."



Typical Cambodian grass, low quality



Cambodian hash



Mix spliff



Medicinal Marijuana Activist American Grower Todd McCormick

By Lazystrain

Todd McCormick isn't your everyday cannabis activist. As a small child Todd was diagnosed with a form of childhood cancer nine times before the age of ten. Although benign, Todd was subjected to a course of chemotherapy, radiotherapy and surgery as a child. To combat nausea Todd's mother secretly introduced him to medicinal applications of marijuana in hospital and Todd survived.

To this day Todd promotes awareness about the medicinal properties of marijuana and has openly set out to help people discover the medicinal benefits of cannabis. In July 1997, despite California's Proposition 215 which allows Californians the use of marijuana for pain-relief, Todd was arrested at his "Medical

Marijuana Mansion" in Bel Air by the DEA for "manufacturing a controlled substance" (growing cannabis plants... at home). Todd's buddy, the Hollywood actor Woody Harrelson stepped up with an astrological \$500,000 to pay the excessive bail fee, while Todd still faced a life sentence in jail.

Dedicated medicinal marijuana activist and author of his own book 'How To Grow Medicinal Marijuana' Todd McCormick agreed to share some of his experiences with the readers of Soft Secrets.

SSUK: Todd, how did you first discover the medicinal properties of cannabis?

The first time I discovered the medical effects of cannabis I was in a car driving home from a radiation and chemotherapy session with my mother. I was experiencing my ninth major bout with cancer and it was in soft tissue for the first time, which itself gave a very grim prognosis; the year was 1979 and

given to me back in 1972 when I was only a two-year-old baby.

When/where did you first start growing your own marijuana as medicine?

Cannabis has always been medical at least to me; I started growing cannabis when I was 13 years old. As a child I had always been given a lot of models of cars and airplanes and motorcycles in which to

brother; he was 19 and living on his own with his girlfriend. When we arrived Fred had just completed building a plywood grow closet in his living room, straight out of Mel Frank and Ed Rosenthal's Closet Cultivator, once I saw the book it was all over, my future was shaped forever. I forced him to give me the book in exchange for the bag of pot he wanted to front. I took it home, cleaned out my closet, and I literally found everything I needed to grow already in the house; the tube lights came from my grandmother's workbench, the timer came from her picture window, the pots and soil I found the backyard, the pulleys I used for the ropes that I hung the lights with so that I would have adjustment capabilities I found on the clothesline that we no longer used. The only thing I went out and purchased was plant food.

I followed the directions and I'm happy to say that I haphazardly sold most of my very first harvest to my friend Mark who was my dealer; back in 1982 most people had not seen fresh cannabis grown locally, so it looked awesome with its crystals and its untouched beauty. Even though it was loose spindly buds because of the fluorescent light it was still great

grass. My own mother didn't find out I was growing cannabis for almost a year and when my grandmother found my grow room she could not believe that A) I grew these plants in a closet, and B) that there wasn't anything I was going to dip it in, spray on it, mix it with, or somehow change the simple flower to turn it into a "drug". When I told her that I only dried it and smoked it she was astonished and told me that if it was that simple it wouldn't be illegal!

What is your favourite variety of marijuana to grow?

I am a big fan of Haze: Neville, if you're reading this, THANK YOU! He holds a Haze male that is responsible for the Haze in NL5 X Haze, Super Silver Haze and of course Neville's Haze just to name a few. I am forever grateful for breeders like him and Simon at Serious Seeds, speaking specifically about Serious Seed's Kali Mist, breeders who can take these ultra tropical plants, in Simon's case a 16 week Haze, and bring it down to a manageable 10 week hybrid.

Do you prefer working with sativa or indica, landrace or cultivated, varieties?

I definitely prefer clear motivational highs and cannabis that reduces pain. I think that trying to categorize it so simply with Sativa or Indica takes away from the complexity of the nuances that can be created by the grower simply by harvesting early or late. I prefer Afghans that are harvested early, but then again I prefer tropical varieties that are harvested late. After hanging out with Rob Clarke during my time in Amsterdam I learned that we should be focusing on cannabinoid content and the synergistic effect THC, CBD, CBN, etc. has on different conditions, be it recreational or medical use.

Which method(s) of cultivation do you employ most?

I started off growing in soil, but these days I very much appreciate the mechanism of hydroponics and the ability to leave my plants and not have to worry about somebody watering or over-watering them while I'm away. Depending on circumstances will take dictate on what

There really is no wrong way to grow cannabis, depending on the environmental situation will determine what tools I choose to use.

I was nine years old, my mother had read in a major American magazine called Good Housekeeping that cancer patients were benefiting from cannabis use and she decided to have me give it a try, actually, she told me to sip the joint as if it were a straw, a few sips later I was not feeling nauseous and by the time we got home I was actually hungry, which was of course a major turnaround. I continue to use cannabis post cancer for pain reduction due to a five vertebrae spinal fusion that was

build while passing time in my hospital bed, so I was very good at following directions and putting things together. I started selling pot when I was only 12 years old, I had access to my mothers stash, she was like an old-school house-dealer. When she would be at work her friends would often call and I would meet them at the back door with either a 20 or 40 dollar bag. By the time I was 13 I was selling to some of my own friends. One day we went over to my friend Fred's house, he was my best friend's older



California medicinal harvest 2006, Southern California



Mother plants



Todd at what he does best: growing top-class marijuana

kind of garden I construct. Right now it is harvest season in California, I have plants that I am harvesting which I grew in an organic soil mix, I also have a nursery that is mostly hydroponics. I do all my pre-growing on a flood table, depending on where the plane is going to go will depend on whether or not it remains in hydroponics. When I flower indoors I like to use hydroponics under lights, when I flower outdoors there's no question on them being in the ground.

There really is no wrong way to grow cannabis, depending on the environmental situation will determine what tools I choose to use. I urge people to grow organically regardless of their medium. With the plethora of chemicals and available nutrients there really is no need to poison yourself or the people who will use your product.

Which methods of self-medication do you use? Smoke or ingestion?

I tend to like joints; I like being able to self titrate so easily. I have a couple volcanoes that I keep very close to my desk and in my living room, but I find myself being a little old school in my appreciation for a simple joint. I like getting the full range of cannabinoids that a joint provides.

How do you suggest medicinal users best grow medicinal plants?

With patience and dedication, not to over-water and to start with a good soil combination that is not too rich in fertilizers. I believe cannabis is the most over cared for and over-fertilized plant on the planet. Start with a good strain and get as much information as you can.

My role in growing cannabis strains is more that of a spectator, I have met true geniuses; guys like Sam the skunk man (the breeder of Skunk No.1) and Neville (in my opinion the true "king of cannabis") have contributed enormously to what we

grow and know as modern-day strains. If I could just collect everything they've made I would be a happy man. And knowing many of the top breeders as I do, I realized that unless you know what specific traits the breeder was intending you don't really know the plant. For instance; people who buy Kali Mist from Serious Seeds and bring home their seed pack only to choose one of the fast, fat flowering phenotypes from their seed bag are really not getting the cannabis that was intended. What Simon (owner of Serious Seeds – ed.) was trying to do was take a 16 week Haze female and bring her to a more manageable flowering time while retaining her taste, scent and high. He did it most marvellously I might add in creating a 10 week plant that has all the subtleties of her 16 week mother.

It was my goal to collect and identify, the many fantastic and incredibly different varieties that are floating around the globe today. At the time of my arrest I was juggling over 50 strains of cannabis and over 4000 living plants. More of my focus was in doing cannabinoid research and in doing so trying to get a five



dimensional look into the plant. Trying to compare cannabinoid profiles and the effects created. If this is really going to be thought of as medicine it has to be consistent. The only place were going find true consistency is on the chemical level. In my opinion California was in the dark ages when proposition 215 past; people would ask for "marijuana", not for

Knowing many of the top breeders as I do, I realized that unless you know what specific traits the breeder was intending you don't really know the plant.

specific strains, can you imagine walking up to a bar and asking the bartender to give you anything alcohol? You could get a shot a whiskey, maybe wine, perhaps a beer, or maybe a shot a grain alcohol, all very different, all still just alcohol. In many ways cannabis is still that simplified, though with education and the Internet it won't be that way much longer.

What made you think about writing 'How To Grow Medical Marijuana'?

I have seen a lot of grow books that simply copy from a book about how to grow plants and stick in the word marijuana. I wanted to write a book that would better describe in a more simplistic way how easy it could be for anybody to grow cannabis. I wanted to try to bring the Epiphany of self reliance to more people, I was cut off in the middle of writing the book by the arrest and alas, it is not the book I wanted to put out. I'm working on revising it and inserting strain specific growing techniques.

What are your future aspirations from here? Any new projects?

Well I ended up going to prison in the year 2000 for what ended up being 87 1/2 percent of a five-year sentence; that translates into four years in prison and six months in a halfway house. What I did not expect at the time of my arrest was that at the time of my trial I would not be allowed to raise any defence. I am now a bit more sceptical of the whole system of (in)justice, I am not naïve and with our current American administration being run by oil companies I have little hope for a change in federal law anytime soon.

When I got out of prison I started a company called "Select Strains" and we started distributing cuttings like OG Kush, Super Silver Haze, Sensi Star, Dawg, Hog, and a few other California classics to the clubs all over the state. Personally, I am really sick and tired of marginal cannabis being the only thing that is availably traded in cloned form; most

of the truly desired varieties are never released to the general public because of greed by the growers who hold them. So I'm doing what I can to help spread the best herb I can find.

I also started a company called Just Shoot Me LLC, which I use for my photography, it actually came out of my probation officer wanting me to get a job, my initial reaction was; "Aw, just shoot me, what else do you want?" Hence the name of my company, I mostly shoot cannabis, but what started out as a joke has now landed my photographs in places like GQ magazine.

I am also working on a project called Artists Helping End Marihuana Prohibition; a crude site is up at www.ahemp.org After networking with a lot of Woody's peers I got motivated and wanted to find a way to bring them all together, which is of course easier said than done. This movement needs more of a voice, we need more people who are intelligent, wealthy, and successful to step up and come out of the closet. People like Richard Branson, Anita Roddick, Hugh Hefner, Paul McCartney and others should be doing a whole lot more to help end this futile prohibition instead of just getting high in their mansions and proselytizing about all the good they do, while in reality, even with all their wealth, they are afraid to simply plant a seed in soil and stand by it while it grows. I have gladly traded my liberty for the fate of a flower to grow, for often the simplest of causes is the most noble.

Tim Leary had it only half right; my motto is: Turn on, Tune in and Take Over!



OGK (Original Gangster Kush) clones

By Kristie Szalanski

Ed Rosenthal Super Bud Release party

Tired of all the boring bud in your neighbourhood? Looking for something brand new to grow at home? Sensi Seeds has just released a sativa dominant strain called *Ed Rosenthal Super Bud* in order to pay homage to one of the more famous teachers of Cannabis cultivation. As part of the High Times Cannabis Cup 2006, the Sensi Hash Marijuana Hemp Museum and Cannabis College got together to host the Sensi Seeds product release party, at which Rosenthal was honoured with a namesake of the green and flowery variety. Familiar faces abounded, as the best and brightest of the Cannabis industry gathered to usher in a new variety of weed.



Ed Rosenthal (right) is being honoured by Sensi Seeds' Ben Dronkers

Monday at 4:20 PM, 20 November, 2006, a new member of the Sensi ladies was unveiled: *Ed Rosenthal Super Bud* from Sensi Seeds. Anyone who knows anything about breeding will realise that this "new" strain has been in the works for years before its release, combining decades of knowledge with multiple generations of some of the hardiest and most interesting genetics collected within the industry. The Super Bud borrows some of the strongest traits from unique sativas such as Caribbean, Central American, African, and South Eastern Asian plants, plus packing an indica punch for those seeking heavy flowering crops. A fruity pineapple scent and flavour will satisfy smokers craving

a sativa buzz with an indica flavour, and the specially-selected hybrid will provide a satisfying yield for those who need to pay the rent. The flower formation seems to be what separates this new treat from old stand-bys, as there will be some visual difference between plants which may be either more sativa or indica dominant, combining the density of indica buds with the lengthened colas of the sativa family. According to the seed company, there is really not much other phenotypic variation, a relief to those with limited space, time, or of limited experience. During the pre-flower stage the Super Bud will occasionally experience a small growth spurt, as is typical with many

equatorial strains and actually lends to a slightly higher yield, due to elongation between internodes. Sensi Seeds claims the plants will increase their height by about 150%, although "sea of green" and super-cropping are possible with this new lady on the scene. Ed Rosenthal, perhaps most famously known for his many grow books and "Ask Ed" column in *High Times* magazine (next year also in *Soft Secrets*!), has been a close friend of Sensi Seeds founder Ben Dronkers for two decades. Together these two have educated the public as to how to produce the best and heaviest buds possible, as well as Ben providing these same growers with excellent reliable seed stock. Ed has been a journalist, professor, researcher, and teacher of Cannabis for nearly 35 years, and Ben thought it only fitting to honour him with a powerful strain of weed carrying his name.

Dronkers delivered a speech expressing his gratitude towards the man whom, as he puts it, "is not only the man who writes about it, not only the guy who talks about it; he was right there," referring to a time in the early days when Ben invited Ed over to his first greenhouse for some advice. It seems Ben had been unable to visit the plants for some days, and due to the closed windows, mould had rampaged the garden, which highly embarrassed the student in front of his teacher. Instead of standing idly by and just offering information, Ed "jumped right in" and started helping with the plants. Dronkers pointed out that in this day of the egotistical grower who may be more concerned with status and cash than in helping educate his fellow gardeners, it's nice that the Cannabis community still has a few dedicated teachers on which to rely; those who aren't afraid to get their hands dirty. These father figures not only offer information to the cultivating masses, they also provide some of the very strongest and most stable genetics available. In 1981 some seeds were supplied by Rosenthal to a breeder who grew them out, ranging from equatorial African, Mexican, Thai, Afghani, Kush, and Afganai-Durban strains from pure stock. Within the five years that followed over 12 generations of seeds were produced hybrids were created based on yield and potency of each strain. According to Ed, "There wasn't a plant there that you wouldn't want to smoke..." Unfortunately only around 1500 seeds



were available and quickly sold out. In the early 90's the Dutch police increased their priority towards busting greenhouses, forcing the industry indoors. Limited space meant that Sensi was forced to focus on creating reliable F1 strains with consistent yields for indoor growers instead of experimenting with unusual and unique crosses grown more for flavour or effect. Due to the limited space and the harsh penalties incurred upon large-scale growers, the development of the genetics was not so much put on hold as slowed down, which is why the Super Bud was just released, even though the seed stock dates back to the early 80's. Worth the wait? You be the judge; pick up a pack of the new Ed Rosenthal Super Bud and grow your own. Problems? Ask Ed!



Cannabis Ruderalis

A Rare Strain

By Markus Berger

Photos: Sensi Seed Bank

Cannabis Ruderalis is probably vaguely known by name only, to most Soft Secrets readers. It is also known as primeval weed because this particular strain of cannabis has been used since prehistoric times. It still grows today, mostly in the wilds and it is often used as a parent plant when breeding new and mainly outdoor strains because it is so naturally robust. Soft Secrets provides some fundamental information about this hardly known hemp strain.

It is still a moot point whether the genus Cannabis consists of three differing Cannabis types or one type with a variety ranging from it. Such differences in opinion are also held with regard to plants such as Datura (Thornapple), Lophophora (Peyote) and some fungi in the Psilocybe family. Cannabis expert, Matthias Bröckers declares, “It is only recently that Science makes premises of single types from which variations develop. This can be seen with regard to differences in climatic conditions for the wild growth of Cannabis Ruderalis compared to the resin rich Cannabis Indica.” And further, “The question whether the genus Cannabis exists in many types or are all derived from one strain is highly controversial. The three strains Cannabis Sativa, Cannabis Indica and Cannabis Ruderalis can be partly differentiated by sub subdividing two groups under Cannabis Sativa, with Indica as the second or by subdividing two groups under Cannabis Indica with Sativa as the second.” Consider this from the book ‘Plants of the Gods’ by Schultes and Hofman, “By just raising the question of how many varieties of Cannabis sorts exist, it soon becomes debatable whether the genus is a single strain that encompasses a large variety or whether there are definitive differences that separate the sorts. Currently the evidence seems to point towards three distinctive strains. Cannabis Indica, Cannabis Ruderalis and Cannabis Sativa can all be classified with differences in their elementary fibres.”

Characteristics and nicknames

Cannabis Ruderalis was first formally described by the Russian botanist, Janischewski. It originates in Southeast Russia but currently grows wild from the Caucasus right up into China. The name Ruderalis is derived from the tough, stony places on the plains where this sturdy little plant prefers to take hold. These places are known as ‘ruderal’ and so Ruderalis indicates a plant that can even survive on building rubble.

Ruderalis is short and stocky with a maximum height during flowering between 30 and 60 centimetres. In comparison with Indian hemp, Indica, Ruderalis has very small short leaves, hardly any branches and it produces one small firm flower, right on its main growth stem. The seed casing shows a difference in the outer covering tissue, which appears wrinkly and almost spotty. These seeds are usually smaller than their Sativa counterparts but are still larger than those of Indica.

Traditional nicknames for Ruderalis are Anascha, Konopli, Mimea, Momea, Mumea, Penka, Penscha, Ruderalhanf, Russian Hemp, Primeval hemp, Wild Hemp, Rough Hemp, Hemp and Weedy hemp.

Botanical synonyms are Cannabis Intersita SOJAK, C. sativa LINNÉ ssp.

spontanea SEREBR. ex. SEREBR. et SIZOV, C. sativa LINNÉ var. Ruderalis (JANISCHEWSKY), C. sativa LINNÉ var. spontanea MANSFIELD und Cannabis spontanea MANSFIELD.

The history of primeval hemp

The Greek historian, Herodotus of Halikarnassus (490-430 BC) describes the use of Ruderalis hemp for burial rituals practised by the Scythians. A tent would be constructed from sticks and folds of felt cloth above a fire place, then everyone would gather under the tent and throw Ruderalis seeds onto the glowing rocks and embers, whilst deeply inhaling the rising fumes. Archaeological finds have confirmed Herodotus by uncovering incense holders and leather pouches full of hemp seeds that date back 2400 years and were found in Scythian burial mounds around Mongolia. The following text was found amongst his notes that were uncovered at his burial site. “Both vats contained a large amount of hemp seeds and these were placed next to the aforementioned large stones. The seeds found were Cannabis Sativa L, of the strain Cannabis Ruderalis, described by Janisch. Hemp seeds were also discovered inside a heavy leather bottle that was attached to the base of a large vat in the form of a Scythian cauldron. The stones in the smoking vats were burned and some of the remaining seeds were carbonised.

Apart from its use in burial rituals, the Scythians used this strain of hemp as their favourite tranquilliser. In Central Asia, Cannabis Ruderalis has been used since prehistoric times by shamans for rituals and that still happens today in parts of Russia and Mongolia.

Cannabis Ruderalis as folk medicine

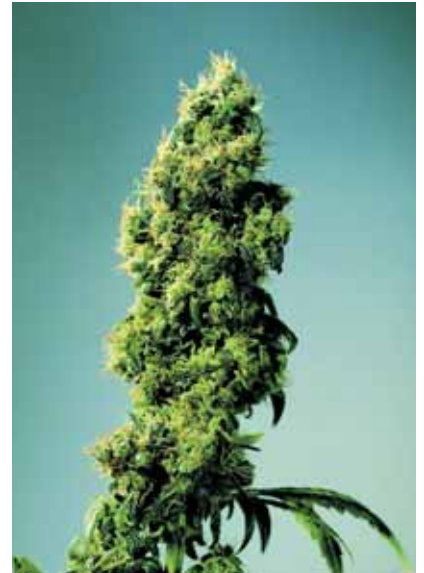
In both Mongolia and Russia, Cannabis Ruderalis is widely used as an antidepressant. A Mongolian ‘bagashun’ or a Russian ‘mummio’ is a tonic against any and all diseases and ills. It is probably created out of a mix Ruderalis, juniper berries and bat shit. The Mongolians identify two strains of cannabis, that is Cannabis Sativa, which is usually used for its oil whilst Ruderalis is usually used for its psychotropic side effects. Jettmar believes that it is very likely that Mongolian shamans use Ruderalis with juniper berries to induce trance states.

Chemical composition

Ruderalis contains about the same amount of cannabinoids as its counterparts. That includes the three main components for THC (delta9-Tetrahydrocannabinol), CBD (Cannabidiol) and CBN (Cannabinol). The quantity of THC in Ruderalis is set at about 40%. In comparison analysis shows that Cannabis Sativa contains up to 70%



Ruderalis Indica near a highway



Sensi's exquisite Ruderalis hybrid Four Way



Sensi Seeds' Ruderalis Skunk

of THC.

Ed Rosenthal has this to say about the psychoactive effects of Ruderalis, “The high from Ruderalis is more of a zoom that quickly descends into a headache. Hybrids and cross breeding on the other hand, often produce a very respectable high.” With cross breeds, Rosenthal is referring to modern cannabis hybrids that have evolved due to selective breeding between the Ruderalis hemp plant and a Cannabis Sativa or Indica or already established hybrid. To conclude, let’s have a quick look at some of these interesting developments.

Modern hybrids founded with Ruderalis.

For outdoor growing, Cannabis Ruderalis can best be crossed with plants derived from Cannabis Indica. Both types are small and robust and have a hearty immune system, (the influence of Ruderalis) and produce a potent high (the influence of Indica). These factors are very important for the successful cross cultivator. Cross breeding with Sativa produces hybrids with an average high content. Ruderalis Indica and Ruderalis Skunk are outdoor strains produced by the Sensi Seed Company. Ruderalis Indica, as the name implies, is a cross between Ruderalis crossed with an Indica cross which originated from Hungary and the former Soviet Union. The producers advertise this strain as being a fast and early bloomer that is still a potent hybrid.

With the early bloomer, Ruderalis Skunk, great care was taken to maintain the original characteristics of the Ruderalis strain. This hybrid is also exceptional from its primeval

origin in that it is able to flower regardless of daylight hours. It will just start when it reaches a certain age. For this reason they are very popular as a beginners plant.

One of Sensi Seeds more exquisite sorts is the Fourway, which is made up of 25% of Indica, Ruderalis, Northern Light and Skunk and is perfect for either indoor or outdoor cultivation.

The Canadian seed company, Mighty Mite Strains, produces two of their own hybrids alongside a purebred Cannabis Ruderalis. The program reads – Ruderalis Skunk crossed with Indica (for indoor and outdoor cultivation) and Mighty Mite crossed with Ruderalis for outdoor cultivation. Their top achiever is the strain Mighty Mite, an Indica strain originating in the Himalayas.

Also to be found in Canada, is the Heritage Seed Company who created the Ben Johnson strain, which is an Indica, crossed with a Ruderalis hybrid.

Jason King’s ‘Cannabible’, came up with a Ruderalis – Strawberry cross. Strawberry is derived from 75% Indica and 25% Sativa. North American Willi Jack Seeds produces an interesting cross between Northern Lights and Ruderalis. The original Northern Lights is a Indica hybrid with a very high potency and is the hallmark of Sensi Seed Bank.

All these different kinds are evidence of how interesting games between genetic properties and conditions can be. As different as all these individual strains of hemp are in appearance and form, so they are also different in their effect, in smell, taste and vegetative habits and preferences. Cannabis Ruderalis is important to cultivators, not only for its hardiness but also for its exceptional flowering ability.

The SSUK Marihuana Cooking Guide

By Martijn Haas

With the Soft Secrets Marihuana Cooking Guide you will never again be caught empty-handed when friends come a-calling. Here you can read the tastiest recipes in which the utilitarian and the congenial are combined in one!



The first thing you have to know when cooking with marihuana is that THC does not dissolve in water, but it does dissolve in oils, fats, and alcohol. This piece of wisdom has been known for thousands of years, since the first hash-eating cultures of for example, India.

Maybe you have heard the stories of people who have tried to make a tea out of a marihuana bud. Some wait for hours and hours, without any high resulting from its consumption. In that case the THC has not (or barely) dissolved in the tea water. In other cases the person does get stoned from the marihuana tea. But that is only because the buds obviously had so many THC molecules in them that they were simply driven in to the water, and so it was these suspended molecules that the user had imbibed. But this last example has nothing to do with making any kind of tea.

One other lesson is that it makes very little sense to make huge amounts of food if getting stoned is the primary goal. The more you eat, the more difficult it is for the THC to get into the blood stream, because it has to find its way out of the stomach through all the other food that has been consumed. That is not something that is insurmountable; the stonedness will come eventually. But a drawback is that the body evacuates a large part of the THC along with a large plate of pasta. That is a shame, because then you have paid for cannabis that in actual fact you have not actual used.

One other reason why we should not eat too much in combination with marijuana is that, particularly for people with a sensitive stomach, such a combination can quickly develop symptoms of queasiness.

Warning! Make sure that the ganja that you use remains in an air-tight package, right up to the moment that you are about to use it. Letting your buds lie around too long in a kitchen unit will result in a loss of the active force.

One other question that perhaps you are about to ask yourself is whether cannabis sativa still works when it has been baked? Well now, in principle the answer that the active force of ganja declines as soon as it is burnt. We will be taking account of this in the recipes. Mostly we are talking about toasting the buds, whereby the effect remains intact.

1. Starting ingredients

Below is a short list of the products that can be made at home, that can be used as substitutes for the traditional starting ingredients.

Cannabis butter

Cannabis butter, also known as Ghee, is a product that is used in many marijuana-tinted meals. You can see it as a basic starting ingredient. That is why it is described here apart from the regular recipes.

Where to get it? – In the Netherlands, Cannabis butter or Ghee can be bought at some coffee shops. This is certainly not the case in the UK and besides, it is much more fun to make your own anyway!

Preparation instructions: Heat 2 pounds of real dairy butter in a pan on a low flame. Just until the little white flakes start to float to the top. This white top layer is skimmed off with a spoon. You continue this process until there is only pure oil left behind. This you then pour into a jar that can be sealed, and then placed in your fridge.

The next step is put the Ghee in a pan again the next day, on a low temperature, and stir into it well-sieved marihuana buds. Add a little vodka and salt to it. Keep stirring until the butter takes on the green colour of the cannabis. Then pour this warm stuff through a sieve and pour it into a jar so that the pure cannabis butter is separated from the twigs, leaves and the bud remains. Put the green butter in the fridge.

You can also do this whole process with a sieved, or finely-crumbled hash. That is also much easier, because you don't end up with all those twigs, and the hash dissolves much more easily in the butter.

Cannabis brandy

Because cannabis dissolves so well in alcohol it is an excellent idea to begin our master class with the making of an alcoholic pick-me-up, spiced up with the necessary THC. This is something you can drink pure. But we mostly use the brandy to add some pep to other dishes.

Preparation instructions – It is actually pretty easy to make *canna-brand*y. Take a bowl or Tupperware tub that can be sealed and toss in all the marihuana leftovers you have at home. Add to this enough decent rum, vodka, or brandy to cover it. Leave the cannabis leftovers for a few weeks in the alcoholic drink.

After this you put the jar or tub *au bain marie* in a large metal pan stood on the gas with boiling-to-almost-boiling water in the bottom. Warm the tub for around 45 minutes.

Take a sieve in which you have placed the old trimmings of cannabis. Pour the warmed alcoholic brandy through this sieve and in to another tub or bowl.

Repeat this process until the booze is so full of marihuana herbs, that a small swig is already enough for a one way ticket to fairytale land. Then just pour this enriched drink in to a tightly sealable bottle. You can also, should you wish, also add a few drops of hash oil to give the potion that extra aromatic effect.

Shake the bottle well before you use any of the contents. The active ingredients will tend to settle at the bottom. Should clumps start to settle out after the liquid has been stored for a long time, simply warm up the cannabis brandy again *au bain marie*. Then add a bit of extra brandy to it.

2. Recipes

Because large meals work against the effects of THC, here we will be offering mostly small recipes, ones that combine pleasure for the taste buds and spirit-enriching effects with each other.

Instant hash bhang

A popular Indian drink.

Preparation instructions: Put a couple of knobs of hash butter in a pan along with two tea cups of boiling water. Add to this 1 gram of crumbled hash and let the mixture boil for a minute. Fill two tall mugs 1/3 full with milk. Pour the same quantity of the hash-butter water through a sieve in to the mug, and leave any residue behind in the sieve. Add to each mug 1 dessertspoon of honey, 1 teaspoon of nutmeg and 1 teaspoon of cinnamon. Stir well, then sit back and enjoy!!

Majoon marihuana jam

Majoon is a type of jam that is widely eaten in India. People there eat it on crackers or on toast.

Preparation instructions – Take a baking pan and scatter a quarter of a gram of nicely sorted marihuana buds in to it, then roast them until they are good and brown. Now get a bowl and toss the buds in. Add a number of dates, a half cup of sultanas, a half cup of shelled walnuts, and a teaspoon each of ground nutmeg and aniseed. Then to finish off, add a dessertspoon of honey. Stir the whole thing until you have a mush.

Add half a drinking glass of water, then boil this mixture in a small pan until the ingredients have become soft and mixed in with each other. While the product is still hot, add a further two dessert spoons of melted butter to it and beat this in to the jam. Then put the jam into a glass jar with a firm lid on it, and save this in the fridge. Your Sunday morning toast will never be the same again!

Hamentashen

This is a different jam. But this is made from hash. You can consume it in the same way as the majoon jam, with crackers or toast. Majoon and Hamentashen are in fact the same products as the famous ‘green paste’ that was eaten by the members of the *Club des Hashischins*, and enjoyed at the end of the 19th Century by the likes of writers Rimbaud and Baudelaire.

Preparation instructions: Mix in a bowl with a wooden masher two cups of dried plums (prunes), a half cup of almonds, 1 dessert spoon of lemon juice, half top 1 teaspoon of powdered cinnamon and a quarter gram of hash. That is the whole procedure. Accordingly, put the jam in a pot and keep it cool.

White Marrakesh cookies

Mix with a spatula 1 cup of warm cannabis butter and a half cup of honey. Add an egg to it, plus two dessert spoons of vanilla powder. Add a very small handful of orange zest.

Next you add three cups of flour mixed with 1 teaspoon of baking powder. Stir these ingredients until you have a good dough in your hands.

Let the dough cool in the fridge for an hour so that it becomes stiff. Take out the dough and roll it out with a rolling pin or bottle, so that it is approximately 1 centimetre thick. Then cut the cookie shapes out of the dough, but do not let any one piece be more than 5 centimetres wide or long. You can use a drinking glass for this, pressing its rim into the dough, if you have not got a cookie cutter in your kitchen.

Place the cookies on a baking tray or on a grill shelf with aluminium foil and press a single almond in to the centre of each cookie. Bake this tray in a pre-heated oven at 190 degrees Celsius for 6 to 8 minutes. Let them cool, and get your dunking hand ready!

Mexican dip sauce

Mix with a masher 3 dessert spoons of wine vinegar, 2 teaspoons chilli powder and half a cup full of pulverised marihuana buds thoroughly. Let this half-product stand for an hour. Then add three ripe avocados and two diced onions. Mix all these ingredients together until the avocado is mixed with all the other materials. Serve this as a dip sauce with taco chips.

You can also vary this recipe by omitting the wine vinegar, and lightly roasting the marihuana in a baking tray together with a half cup of olive oil. After that you add this to the avocado, the onions and the chilli powder. Adding a splash of lemon juice will add a bit of zing to the mixture.

In this last variation the effects of the THC are greater than in the first case.

Cannabis milk shake

Combine a half gram of finely chopped marihuana buds with a half drinking glass of milk and half a drinking glass of single cream.

Add to this a half teaspoon of white castor sugar. Mix the whole lot in a blender for two minutes.

Next pour the contents of the blender in to a pan and warm the drink on a low flame for ten minutes. Make sure there is no skin on the surface, and skim this off if it does form.

Then add a few spoons of honey to the mix in the pan. Pour the drink back in to the blender, and add half a teaspoon of vanilla powder to it. Turn off the blender, and pour the mixture into the fridge and leave until ice cold.

When you come to drinking the milkshake, turn the blender back on and give the mix a good frothy whiz. Serve with a straw!

How do I make an ice cream out of the mixture?

Well now, add a raw egg to the milkshake, and beat the mixture well. Put this in a suitable mould, such as a Tupperware tub, or an old ice cream tub. Put the lid on firmly and put it in the freezer compartment. Do not let the tub sit for too long in the freezer, because then the ice will crystallize too much! But do serve the ice cream ice cold!

Crème de gras

To make a really delicious marihuana liqueur, you need a bit of patience. A real distillation process takes place that will be described here.

Preparation instructions – Put the contents of a 2-gram pack of marihuana in a quarter litre bottle. You can use an old, well-cleaned gin bottle or something along those lines. Add to this heated vodka, and a similar quantity of water, so that the bottle is filled up. Keep this bottle at room temperature for five days. Take a look every so often to check that the buds are not floating to the top too much.

After this period you sieve the buds and twigs out. The residue you use to add to a new bottle of heated vodka. Sieve this one too after five days and add the sieved liquid to the mixture from the first bottle. Let the residue steep for another five days in a quarter of a litre of pure water.

On the fifth day, heat the bottle *au bain marie* in a pan with water for 45 minutes. Do not screw the top on the bottle too hard, as if you do you can run the risk of an explosion.

After this you sieve the warmed marihuana water off, and add this to the already sieved alcoholic drink. Filter this half and half product through a coffee filter. Repeat this step several times so that you end up with a clear liquid. Should there be any gunk left behind in the filtered liqueur, leave the bottle to stand for a few days, so that the sediment sinks to the bottom of the bottle.

The clean filtered drink is poured in to a bottle on to which the top is carefully screwed and placed back in the hot water pan and warmed for a further 15 minutes. Add with a thin spoon several dessert spoons of honey to the bottle. Tighten the bottle top well, and shake well so that the honey dissolves in the liqueur.

The eventual product is transferred into an elongated liqueur bottle. The longer and thinner the bottle, the better it is for letting the sediment settle. Finally, you leave the bottle to stand for a few months.

After this period of time, pour the contents of the bottle once more through a coffee filter so that any newly—formed sediment is also removed. Label the bottle appropriately, such as your own *crème de gras*.

On consuming it, you will find after two glasses that you're hit by a high experience the likes of which you have never had before!

Turkish cuppa

As a rule of thumb, coffee reduces the intoxicating effect of THC, and strengthens its energy-giving qualities.

Preparation instructions: Make a good pot of coffee in the classic filter method.

Use a Turkish coffee boiler into which you add for each cup of coffee a teaspoon of Arabian mokka powder. If you are not acquainted with such a coffee boiler or with mokka, go take a look in any Turkish spice shop, such as you will find in most large towns. Purchasing one should not set you back too much.

Add to this a dash of cardamom seeds, which you can also get hold of in Moroccan or Turkish grocers shops. Then add to this a half gram of hash per cup.

Next pour the freshly made coffee over the mokka powder and the cardamom seeds in the boiler. Heat the Turkish boiler over a soft flame on the stove top, until the moment that it threatens to boil. At that moment remove it immediately from the stove.

Serve the Turkish cuppa in an espresso cup, complete with tiny spoon. You can add a small spoonful of honey too.

With or without hash, this is the way to make proper Turkish coffee.

Then just sip away at the coffee, and use your small spoon to bring the mokka, the cardamom and the honing to the surface. Your enjoyment can begin!

**This article has drawn heavily from the standard work *Cooking with Cannabis* by Adam Gottlieb.*

Warning!!!

It is well-known to the average Soft Secrets reader that by eating space cake you are rendered stoned for longer and more deeply than if you just smoke a joint. The recipes mentioned here are all for the experienced cannabist. Are you not too sure what you're dealing with here? Then proceed carefully and use a little bit less than the amounts of cannabis stated here!

